DOCUMENT RESUME

ED 062 512 VT 014 704

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TITLE Review and Synthesis of Strategies for Effecting Change in Vocational and Technical Education.
INSTITUTION Ohio State Univ., Columbus. Center for Vocational and Technical Education.
SPONS AGENCY Office of Education (DHEW), Washington, D.C.
REPORT NO Inf-Ser-59
PUB DATE 72
NOTE 64p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Bibliographies; Change Agents; Curriculum Evaluation; *Educational Change; *Educational Innovation; Educational Planning; Educational Principles; *Educational Strategies; Organizational Change; *Research Reviews (Publications); Technical Education; *Vocational Education

ABSTRACT

Written as a synthesis of strategies for effecting change, this document is directed toward state and local educational administrators, supervisory personnel, researchers, development personnel, teachers, and teacher educators. In reviewing the literature it was evident that during the past few years there has been a growing emphasis on local initiative in development activities and planning. Local development will require support from Federal, state, and private sources, and improved coordination of change activities among and between all levels of the education structure--from Federal to classroom level. The primary focus must always be on developing local vocational-technical programs which are continuously innovative and self-renewing, with change efforts devoted to improving what the teacher does and how he does it. The literature is reviewed by (1) rationale for planned change, (2) the change process, and (3) alternate strategies for implementation. (JS)

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review and synthesis of

STRATEGIES FOR EFFECTING CHANGE IN VOCATIONAL AND TECHNICAL EDUCATION

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Information Series 59
VT 014 704

REVIEW AND SYNTHESIS OF STRATEGIES FOR EFFECTING CHANGE IN VOCATIONAL AND TECHNICAL EDUCATION

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April, 1972

The material in this publication was prepared pursuant to a contract with the Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official Office of Education position or policy.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

PREFACE

Review and Synthesis of Strategies for Effecting Change in Vocational and Technical Education serves as a synthesis of studies on changes occurring and under consideration in the area of vocational and technical education. It should prove a valuable resource to researchers, as well as state and local administrators and supervisors.

Throughout the report much emphasis is given to the term "community"–how it varies in type and definition and in relation to change.

The profession is indebted to James E. Wall, Mississippi State University, for his scholarship in the preparation of this report. Recognition is also due David Williams, University of Illinois; Earl Russell, University of Georgia; and William L. Hull, The Center, for their critical review of the manuscript prior to final revision and publication. Wesley E. Budke, information specialist at The Center, coordinated the publication's development.

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INTRODUCTION

This paper is a review and synthesis of strategies for effecting change in vocational and technical education. It is directed primarily toward state and local educational administrators, supervisory personnel, researchers, development personnel, teachers, and teacher educators, who, as ***change agents,*** share the responsibilities for implementing changes in programs of vocational and technical education.

The primary purpose of this document is to summarize the many reports and studies of strategies that have focused upon implementing change in the field of vocational and technical education. The material contained within is considered to be that which relates most directly to vocational and technical education. However, strategies used to implement change derive from many of the traditional disciplines such as education, sociology, anthropology, psychology, political science, and others. New and emerging disciplines, such as diffusion research, communication, and others, also have contributed immeasurably to the development of strategies used to implement change in vocational and technical education. Consequently, the problem here is seen as being that of synthesizing a massive amount of material which has been generated through a number of complex disciplines and interpreting the essence of these reports and studies for application in the vocational and technical education milieu.

A careful search was made of professional journals, information systems, reports of agencies of various types, writings of individuals, and indexes of materials found in various disciplines. However, it is recognized that a complete review would be impossible. Major sources of materials reviewed here were: (1) the ERIC Clearinghouse at The Center for Vocational and Technical Education; (2) the *Current Index to Journals in Education* (CIJE); (3) annotated bibliographies compiled by specialized agencies and research and development centers; and (4) library collections of the Mississippi RCU and the Social Science Research Center, both of which are located at Mississippi State University. This paper relied also on bibliographies and compendiums of papers and essays which were compiled from conference, seminar, institute, and symposium proceedings.

Various criteria might have been used for the selection of materials reviewed in this document; however, the writer used *comprehensiveness* and *pervasiveness* in selecting the strategies to be reviewed. Comprehensiveness as used here connotes ***breadth*** of influence of the strategy insofar as it affected a number of organizational levels (federal, state, school district, attendance center, classroom) and agencies. It also relates to the degree or severity of change required, as well as to the extent of changes involving interpersonal relations. Pervasiveness connotes the depth of impact of the strategy insofar as it apparently would affect large numbers of persons at a given level. Pervasiveness of the

strategy also relates to the number of planned steps or phases of action in the change process. It relates also to the impetus or source for change, the degree and quality of local school and community commitment and involvement, the presence and scope of built-in evaluation procedures, the emphasis on diffusion of the innovation to other systems or subsystems, and the extent to which the innovation was adopted and the degree of lasting commitment to it in the target system.

Attention was paid to the reported degree of success achieved in using the strategy; however, success in many cases was attributable to the utilization and emphasis of a technique or tactic within a strategy, and not to the overall strategy itself. Generalizations were sought concerning the consistency with which a given strategy achieved success in a larger number of studies. For example, pilot and demonstration projects seemed to be consistent in their impact in certain stages of the diffusion process.

This paper should serve as a convenient source of helpful information for persons faced with implementing or studying change in vocational and technical education.

TABLE OF CONTENTS

LIST OF FIGURES

REVIEW AND SYNTHESIS OF
STRATEGIES FOR EFFECTING CHANGE IN
VOCATIONAL AND TECHNICAL EDUCATION

RATIONALE FOR PLANNED CHANGE

Nature of Planned Change

Inevitability of Change

Change as a phenomenon in our society is not new. History is replete with documented analyses of change in both the technological as well as the social arenas, although social change has not been as dramatic as technological change. Man is living in a period that is characterized by the single constant of radical change.

Most observers agree that we are beyond debating the inevitability of change. They further agree that the major constant is the tendency toward movement, growth, development, progress, i.e., change (Bennis, Benne, and Chin, 1969). The new and contemporary aspect of change is the swinging of the pendulum from debates concerning change versus no change to debates concerning the best methods to be employed in controlling and directing the forces which influence change. Intertwined here is the implication that effecting change in vocational and technical education, like effecting change in other types of social institutions and sub-institutions, involves social action and social policy. Some critics claim that education is not closely bound to the social trends and rapid changes that characterize contemporary American society. Admittedly, they are partially correct, but major efforts are underway to change this pattern.

Planned Change as Continuous Change

All efforts described in the literature to control and direct change have been labeled with the generic term, planned change. Formerly, change occurred serendipitously and randomly, but relentlessly; whereas currently, change is being designed to occur somewhat more persistently and durably and should result in continuous change. Planned change establishes an environment, an atmosphere, a setting, or a posture in which change away from the traditional is constant, continuous, and self-renewing for the organization. Gardner (1965) stresses the need for new procedures whereby schools can develop and maintain continuous innovation to cope with constantly altering circumstances. Innumerable instances have been reported where funded support for innovation and change has made tremendous impact until supportive funds were exhausted and the project terminated, at which time there occurred regression to the traditional ways of doing things. As a consequence, continuous change did not take place.

Planned Change in Education

Education as a social institution has always been greatly influenced by social and technological change and has attempted to adapt to it. But mere

adaptation does not necessarily constitute planned change. Traditionally, the educational institution has attempted to serve as a transmitter of culture, a "conservative" function. More recently, in addition to being a transmitter of culture (Goslin, 1965), education has attempted to serve as an agent of innovation and change, a "progressive" function.

The "function" of the school is becoming increasingly more comprehensive. The school is expected to develop the capacity of the individual to learn; to share responsibility with the family and home to develop the individual's capacity to live in the culture; to prepare the individual to earn a living; and to retrain the individual (as well as preparing him) as technological progress changes the conditions of employment.

Planned Change in Vocational and Technical Education

Vocational and technical education, as one aspect of the overall social institution called education, is also influenced vastly by the forces of change. Programs in this area must be sensitive to the performance requirements of the marketplace and employers. They must be responsive to a relatively free labor market in which laws of supply and demand for marketable skills operate. No other types of educational programs are as radically affected by fluctuations in economic and related psychological and social conditions as are those in vocational and technical education (Swanson, Nelson, and Meyer, 1969).

Modern vocational and technical education program development requires the coordinated involvement of creative specialists in such fields as: subject-matter, teaching technology, social and psychological sciences, and administration and supervision. Planned change that results in comprehensive program development must be concerned with the total lifetime experiences of the student population–the efficiency of the instructional system and the adult and work roles they will assume, along with the changing demands of the world of work. The systems view, as used by Banathy (1968), or systems approach, as used by Bushnell (1970) and Glaser (1969), or systems analysis, as used by Morgan and Morgan (1968), of program development seems to offer much in the way of assistance in coping with the complex associations, relationships, and problems confronting vocational and technical educators as they attempt to direct and control change in their programs.

The relevant question then seems to be: How can vocational and technical education programs be changed so as to impart to both youth and adults a broader understanding of the world in which they will live and work–to develop skills and knowledge specific enough to afford entry of youth into, and advancement of adults in, the world of work? Although a somewhat oversimplified question, it focuses directly upon the highly complex problem of effecting change in local programs of vocational and technical education.

The breadth of commitment manifest in the Vocational Education Act of 1963 and in the Amendments of 1968 has raised some concern about making vocational education an integral part of the total education process, more now than ever before. Some concern has been voiced about the lack of development of leaders who would have the so-called "broader vision" for adequately administering vocational and technical education as an integral part of a total education program. The implication here seems to be that vocational and technical

educators should become as knowledgeable as possible about more and different areas, remaining within the field of education. While such expansion of one's knowledge of various aspects of education is highly commendable, the writer submits that, generally speaking, most vocational and technical educators still hinder their professional maturation by restricting themselves to this single discipline. An inference here is that change would be enhanced if educators at all levels of vocational and technical education would give increased consideration to disciplines other than just education, especially to the theories of change being derived through them. Psychology, political science, anthropology, economics, and sociology are among relevant disciplines.

To further delineate a rationale for planned change, the following is oriented largely to the contributions of sociologists, and more specifically, to those sociologists who have specialized in the study of community. These contributions need amplification to develop further insights into social phenomena, because whatever most challenges society and communities, ultimately will ramify into the educational system.

Strategies which are designed to improve vocational and technical education programs must take cognizance of the innumerable critical events and trends that occur in the community at large. To be somewhat more specific, schools have reaped the problems caused by failures in housing and welfare policies made at the national and state levels. Likewise, schools have reaped the problems caused by inept leadership (or the total lack of it) at the local level, especially in the area of job development, of which industrialization is a concomitant. No program of vocational education can be successful unless it is founded upon realistic employment opportunities, among other things. Consequently, communities, their schools, and their vocational program personnel need to focus on a three-pronged attack of the overall problem: job development, job training, and job placement and follow-up of trainees. For vocational educators to remain concerned only with training is to be perpetually short-sighted.

Prior to consideration of the main concepts within this section, one must distinguish between "what is" (descriptive or scientific) and "what should be" (normative). Such distinction is relevant to discussions concerning change as normative judgements can run rampant. The ensuing information should be of value in making normative judgments, as well as in analyzing descriptive data.

The Community Concept. Like many other fields within the discipline of sociology, the study of community has a lengthy history, and various theories have been advanced concerning its structure and functions. Most studies of community have been of the "community context" nature, according to Reiss (1959). These focused on space, a community with a well-defined boundary. Or, they considered community from the ecological viewpoint—how people relate to their environment. Others focused on cultural configurations in efforts to determine the extent to which community existed.

Because of the growth in large-scale organizations, corporations, and even government bureaucracies, most studies of social units within the last few years have focused upon state, regional, national, or international levels. Thus, the terms "locality" or "community" are not in common usage by some social

researchers. To such researchers, community is used in a rural context and denotes only the one-room-school type of neighborhood, or a rural village or hamlet with less than 100 students in its high school. The community concept must have much broader implications in order to be relevant to vocational and technical education, and the changes needed in the field. As used here, it has universal application, from village to metropolitan area.

The treatment of the concept "community" here can be justified partially by looking at some of the negative results of economic development and the concomitant expansion of large-scale organizations, which include expansion and change in many school systems. One negative aspect is the growing rate of social and personal disorganization (alienation, frustration, anomie) which seems to have been brought about partially by the decline of essential primary groups, such as the family, church, other neighborhood groupings, and even schools in some instances. It is believed by many observers that the rates of increase in major crimes–which indeed have exceeded rates of economic growth–are a direct result of the decline of primary groups. *Thus, any serious analysis of strategies to change vocational and technical education must include attention to factors in socialization of the individual, especially youth, as well as to processes for increasing production and meeting concomitant changes in the labor force and the occupational structure.* Additional research is needed to determine the impact of youth organizations on the socialization and leadership development of individuals.

An Interactional Perspective. The interactional conception of community considers "the presence and effectiveness of the interactional networks which make possible integrated action on the common concerns of life" (Kaufman, 1959; Kaufman and Wilkinson, 1967). Two things are assumed: (1) that change can take place best through "integrated action" of individuals and of agencies, and (2) that vocational and technical education is, or should be, one of the "common concerns of life."

The interactional conception of community allows one to view community in terms of a configuration (social field) of activities and groups, with the elements of place, population, and institutions providing the necessary background. This approach begins with a place–village, town, metropolis, or a trade area–but rapidly focuses on actions and activity–associations and agencies, programs, and projects. The element of collective or collaborative action is emphasized here. The topic of effecting change in vocational and technical education programs so that they might become more and more relevant to reality may be seen through this framework.

As indicated before, place, population, and institutions provide the necessary background; they are "givens." The town or city is there because population and its consequential institutions exist. Censuses and other routine data-gathering efforts produce much in the way of descriptive materials about the families, schools, churches, organizations, and economic aspects of places, towns, and metropolitan areas. While necessary, the accumulation of these descriptive data does not in itself produce change in community and school. Thus, the critical index of whether or not community in an interactional or associational sense exists is what happens in a place when a crisis occurs. If strong, integrated leadership action is displayed, this indicates that an associational com-

munity exists. Conversely, if most or all problem-solving and decision-making rests with outside agencies, then the extent to which associational community exists would be decreasingly proportionate.

A possible analogy can be drawn here between reaction to crisis and reaction to new educational ideas or innovations. Many new educational ideas and innovations, incidentally, have been generated as a result of recognition of impending crises, or at least to trends and events which approach crisis proportions. This analogy is best illustrated through an example as follows: Suppose that routine follow-up of graduates from a local high school reveals a high degree of incongruency between what they received in the way of education and the work they perform after graduation. The problem is, in general terms, that many schools, large and small, meet minimum standards but not the educational needs of their students. The notion is proposed to implement a cooperative occupational education program as an effort to improve congruency between education and occupational behavior.

Cooperative occupational education then becomes the innovation in focus. The proposition would be this: The extent to which, and the rapidity with which, this innovation is adopted and institutionalized will be directly proportionate to the extent to which interactional or associational community exists, as well as to the extent to which the total education program is an integral part of that community. If the school and all its programs are integral parts of the community, there will be "cultivation of a social and educational climate that is congenial to change in the schools" (Committee, 1968).

The interactional community concept likewise implies that not only does a pattern of order and effective cooperation need to be established and/or strengthened among various levels and agencies of government, school districts, state school offices, universities, and federal agencies; but equally strong, if not stronger, linkages should be established with lay citizen groups and similar organizations and associations that are vitally concerned with overall change and progress. The study of patterns and linkages involves community structure and citizen involvement and participation. One of the prime considerations in vocational and technical education program change should be the explication of whether, and/or the degree to which, capable leadership and voluntary participation in organizations and community affairs exist in those situations where innovations are to be diffused.

Some Precautions Concerning Change Strategies

A need exists for caution in using any single strategy as a panacea for all ills. New or revised programs in vocational and technical education are being developed more rapidly today than ever before. Vocational and technical educators choose to think their programs are in keeping with the constantly changing world of work and the sweeping changes in the larger society, but this may not be entirely true. They may be inadvertently over-reacting to the forces of change and their accompanying pressures. The proliferation and variety of programs and special projects seem to partially reflect the change and transcience, or the "temporariness," that characterizes our society today. Their emergence is so rapid that in time the student's choice of a career, as well as the

preparation route for it, may be seriously affected. What students may not need is an ever-increasing quantity of options, especially if such options fail the test of relevance.

In developing numerous new programs, curriculums, and special projects in vocational and technical education, planners run the risk of "over-choice"–the point at which the advantages of diversity offered to the student are cancelled by the complexities of the career decision-making process. The design of career development programs should reflect the best methods and strategies for placing the student in a decision-making posture so that his choice of a career and preparation for it are compatible. The relative high-speed appearance-disappearance of jobs, careers, and skills, along with greater complexity of choice, confront program developers with the need to make increasingly rapid, frequently trivial though highly influential, decisions. The aim is to prepare persons for life as they will actually have to live it. Consequently the choice of appropriate strategies for implementing change in vocational and technical programs cannot be underestimated.

Some vocational and technical educators perceive change microscopically, i.e., change in the form of adopting or adapting small-scale innovations. Admittedly, small changes may need to precede large-scale changes, depending on the nature of personnel in the school system. But, attention also should be given to long-term, highly pervasive change, as elaborated by Reich (1970) in *The Greening of America* and Toffler (1970) in *Future Shock,* since comprehensive changes of these types impact so very heavily on vocational and technical education programs. However, strategies to be employed in long-term planned change must be known, understood, and compared before use.

A few vocational and technical educators prefer to deal with those areas which they can change easily. They tend to keep on functioning out of comfort and habit and do not really want to get involved in candid assessment of what they do or, what is more important perhaps, what they do not do. Changes of a more pervasive and comprehensive nature are resisted. For instance, changing from one program guide or text for teaching in a specific vocational area to a more recently updated one is relatively simple. It requires only that the teacher make the adoption. Conversely, implementing an entirely new career education curriculum for all grades (K-14) requires a vastly different approach. It probably would require changing the attitudes, beliefs, and behavior patterns of all personnel in the entire local school system, as well as the lay citizenry it is designed to serve. Despite the difficulties involved in employing it, a strategy of planned change that is characterized by comprehensiveness and pervasiveness in its approach would seem to have greater probability for success than one which is less so.

Elements of Planned Change

There are myriad elements, components, factors, and variables to be considered in planned change. Most authors reviewed for this paper attempted to describe the elements in light of their relationships to each other. Some included these elements for elaboration in steps or phases of models for diffusion and change processes. Most recognized that any delineation of elements of planned

change is arbitrary. Each author apparently experienced difficulty in conceptualizing the elements in the pure discipline terms of his own field of specialty, and experienced even greater difficulty in adapting his discourse for persons in different disciplines.

Rogers (1962, 1968) has identified four such key elements in the diffusion process, each of which influences the rate of adoption of innovations. These elements are: (1) the innovation itself; (2) communication; (3) the social (local school) system; and (4) time.

Katz, Levin, and Hamilton (1963) used the following elements to describe diffusion: (1) acceptance, (2) overtime, (3) of some specific innovation–idea, practice, object, (4) by individuals, groups, or other adopting units, (5) linked to specific channels of communication, (6) to a social structure, and (7) to a given system of values of culture.

Each of these elements, although slightly altered with respect to terminology, will be elaborated upon here.

Nature of an Innovation or a Change

There are as many definitions of an innovation or a change as there are writers on the subject. Some view innovation as a type of change that is characterized by self-initiation. Rogers (1962) sees an innovation as "an idea perceived as new." The following definitions of an innovation by Lionberger and Miles seem apropos to the ensuing discussion:

> Innovation–an idea or practice which departs from those generally prevailing among an aggregate of people who may be regarded as targets of directed change effort; or a change in technology including a material object together with definitions of use related thereto (Lionberger, 1965).
>
> Innovation–a deliberate, novel, or specific change which is thought to be efficacious in accomplishing the goals of a system (Miles, 1964a).

Characteristics of Innovations. Rogers (1968) derived a set of innovation characteristics which aids in a better understanding of their nature. These characteristics are: relative advantage, compatibility, divisibility, and complexity.

Relative advantage–the degree to which an innovation is perceived as better than that which it supersedes. Relative advantage can be expressed in such terms as prestige, economics, or convenience to the client or school system. An innovation will be more readily accepted if it is satisfying to the local school system and the element which it supplants or supplements is less satisfying. Prestige is an acquired drive based on the desire of an individual or a local school system to gain favorable response from co-workers or neighboring school systems. If an innovation will add prestige to the school, it probably will be accepted readily. Similarly, an innovation gains acceptance faster if it is first accepted by people in the community who have high prestige, by leaders, and by others of high status.

The conservative tradition often gives way to an innovation that has demonstrated economic advantage. "Seed money" from federal, state, and other sources external to the local school system has been used as one strategy to induce the adoption of educational innovations. There is an economic dimension to the use of such funds by the local school.

Change may be more easily effected in a local school system if an innovation clearly demonstrates a convenient shortcut which accomplishes an objective more efficiently than that which it replaces.

Compatibility–the degree to which an innovation is consistent with the existing values and past experiences of the client or local school system. Most individuals and schools attempt to equate or compare an innovation with something old. The greater the similarity to something old, the greater will be the probability of acceptance. If adopting an innovation will disrupt preexisting values, patterns, or traits, resistance to it will be greater. Some people actually enjoy change and are not necessarily motivated to change by reward or threat. Frequently, they are motivated by such deeper-seated values as: (1) desire for security and esteem; (2) response and self-fulfillment received; and (3) spiritual values, social values, and group norms. Attitudes, values, motives, aspirations, and expectations of individuals and groups, not technical knowledge, are the great barriers to vocational and technical education program improvement via planned change.

Divisibility–the degree to which an innovation may be adopted on a limited basis. A divisible innovation could be adopted by part of a school system, or by a group of teachers within a school system. Similarly, a local school system may adapt certain aspects of an innovation, but may not adopt the innovation in its entirety. In contrast to a stage-by-stage adoption, an all-or-none adoption would not have the characteristic of divisibility.

Complexity–the degree to which an innovation is relatively difficult to understand and use. Generally speaking, an innovation which requires extensive training (cognitive and/or psycho-motor) of teachers and staff in the school system will take somewhat longer to implement. Innovations are seldom adopted into a local school system without some measure of modification or adaptation; i.e., they are "reinterpreted" for adoption locally. The role of the change agent should include "reinterpretation," or "interpretive communication" (Wall and Shill, 1969) skills for use in getting complex innovations diffused. Faulty understanding of a complex innovation usually leads to frustration on the part of practitioners. Continued frustration causes lapse into traditional ways of doing things and nonparticipation of staff members in implementing the innovation.

Levels of Innovation or Change. Few efforts have been made to categorize or type innovations or changes as to "level" (level here denoting pervasiveness, magnitude of impact). One effort has been that of Chin (1964) who claims that there are at least five levels, or perhaps definitions, of change. Apparently Chin lists the five levels in order of the complexity of the innovation or change, and according to the degree of difficulty that might be experienced in implementing it. Meierhenry (1964) added a level to those of Chin and has expanded the descriptions somewhat. The works of both Chin and Meierhenry comprise the bulk of the following delineation of innovations or changes by level.

1. The "Grounder" is an innovation which becomes known to only a very few educators and few of these try it. It is not widely accepted or adopted and may even disappear. Miles (1964) describes this type innovation with an example as follows: "Pressley's invention of a programmed testing device in 1926 appears to fall under the heading of a "false start," a frequent phenomenon in the period of early invention and trial before a diffusible device enters the educational system."

2) Substitution or Alteration is the replacement of some object, material, or hardware with similar items without a fundamental disturbance of other relations which pertain to the school system. An example might be the change from silent motion picture films to sound and from black-and-white to color. It usually does not involve interpersonal relations with other teachers. Neither the person introducing the innovation nor the person adopting it is concerned with either antagonism or support from his co-workers. There is no risk of interpersonal conflict, nor is there necessarily need for external sanction. Alterations have potential for widespread effect; e.g., educational television might shift the prestige and pay hierarchy for master teachers.

3) Perturbation and Variation—Chin (1964) states that changes of perturbation and variation do not involve extensive changes in either the philosophy or direction of the school system. Societal and cultural events may cause a shift of emphasis in the school, but may not cause a major change in direction or structure of the school system itself. Viewed longitudinally, such changes are temporary oscillations in relationships, not real or permanent changes, but merely variations in the equilibrium of a school system. An example of this type innovation would be the event of the Russian Sputnik,, which produced hyper-reactive pressures on education for increased attention to mathematics, the sciences, and other so-called basic subjects. These types of innovations, although creating extensive changes at first, usually are absorbed relatively easily into the ongoing program of education.

4) Restructuring—Changes of restructuring lead to fundamental modifications and reorganizations of the structure of the school system. Chin (1964) states, "Change of this order is basic social change." An example of such an innovation is the inclusion of foreign languages in the elementary school. It was a revelation to parents, as well as to many educators, to find that children could learn foreign languages at a very early age. This type of innovation represents philosophical change among teachers, administrators, and parents. Team teaching, differentiated staffing, departmentalization replacing self-contained units, are other examples of the "restructuring" innovation.

5) Value-Orientation or Reorientation involves more than mere structural, organizational, or process changes; it deals with basic value systems. An example of this type of innovation is desegregation of schools, or the change from dual to unitary school systems, more specifically referred to as "disestablishment of dual school systems" by Palmer (1971). Such innovations influence deep-seated beliefs. Beliefs change more slowly than actual behavior. To a somewhat lesser degree the place of religion in schools has many of the same overtones of basic value judgments. Another example is changing attitudes of the public toward acceptance of vocational and technical education.

6) New Structures as a type of change provides for the creation of an entirely new structure to accommodate an innovation. New structures are sometimes necessary to ensure the success of an innovation if preexisting staff or organization precludes its implementation. Many of the newer changes in teacher education have been grouped under this type of innovation.

Communication and Planned Change

Planned change must be viewed as a complex network of groups, individuals, and organizations having a mutual interest in innovation. The process of communication is also viewed within the context of social systems or groups; it must include the social structure surrounding the communicants. Communication is basically the process of sending and receiving messages. Rogers (1968) defines communication as "the transfer of ideas from source to receiver." Berlo (1960) states that "we communicate to influence—to affect with intent." Hull (1971) describes precisely the work that is currently being done to facilitate the generation, refinement, and utilization of knowledge in vocational education through a network of agencies having communication linkages.

Change Agent–Client System. Planned change involves at least two important social systems. On the one hand, there is the change agent (individual or agency) who perceives the need for change. On the other hand, there is the client system (local school system) which needs changing. This statement in no way should be misconstrued as implying that change could not be initiated from within a school system. Change originating from within a school system is the essence of planned, self-renewing change. Any strategy for effecting change in local programs of vocational and technical education must consider the effectiveness of communications sent from the change agent to the client system. This is referred to as the deliberate and collaborative relationship between change agent and client system. The strategy should also include measures for determining the potential for more effective continuing communication if lasting change is to persist.

Certain relationships exist between the change agent and the client. These are: (1) the change agent (sender) and client system (receiver) are interdependent in the sense of the one having no relevance without the other; (2) there should be a series of communications (links as in a chain) extending over a period of time between the change agent and the client system; (3) the series of communications between change agent and client system is not exclusively between these two entities; some communication is indirect and is mediated through other individuals (e.g., opinion leaders) and groups to which each belongs; (4) both the change agent and the client system have definite positions in the social structure and their communication roles are affected accordingly; and (5) communications between change agent and client system are interdependent acts of ongoing interaction; the "two-step" flow of information is part of this pattern (Katz, 1957; Lionberger, 1960). Havelock (1969) succinctly describes the linker roles as a catalyst, as a resource linker, as a solution giver, and as a process helper.

The change agent, as an individual, may or may not be a member of a knowledge-producing (research and development) organization, but it is neces-

sary that he have interactional relationships with such an organization. He may serve as a linkage between the knowledge-producing organization and the knowledge-applying organization. His influence and consequential effect on a client system will not be better than his prestige or image, or that of the knowledge-producing organization with which he maintains interaction.

The change agent must always be oriented to affecting the behavior of the client system, as opposed to merely disseminating to it or its members information about a change or an innovation. An individual can be induced in many ways. One way change in an individual can be effected is through change in the group. However, the element of the strategy to be employed may be that of identifying and using opinion leaders (Hensel and Johnson, 1969; Bice, 1970; Lionberger, 1960).

As noted above, individual change is a correlate of group change. Group, rather than individual norms of values and beliefs are more representative of the wider culture. Hence, the group tends to influence the values and attitudes of an individual. However, individual changes in values tend to lag behind group changes. This lag may be accompanied by intra-personal tension and frustration which become the correlates of resistances to adoption of innovations. Here again, communication is the key to overcoming such problems. The internal communications of a client system tend to build uniformity of values and beliefs. This is an extremely important consideration in the building and maintenance of an environment that is conducive to lasting or planned change.

Another aspect of communication deserving attention here could be called external contacts. In general, the greater the number of lines of contact and communication that a school system has with other educational systems, knowledge-producing organizations, and the like, the greater will be the likelihood of acceptance of change by that school system. Roger's (1962) summary of diffusion research indicates that schools which are innovation-adoption prone are characterized by teachers who attend out-of-town conferences, meetings, institutes, and who read widely to find new ideas. Eichholz and Rogers (1964) concluded that "innovativeness varies directly with cosmopoliteness (defined as the degree to which an individual's orientation is external to a particular social system)."

Conditions of Communication. Effective communication requires that certain conditions must be met. Members of the client system must: (1) be exposed to the message; (2) interpret or perceive correctly that action or attitude which is desired of them by the change agent; (3) remember or retain the content of the message the change agent transmits; and (4) decide whether or not they will be favorably disposed to or influenced by the communication. The change agent must be authoritative and sincere with the client system. He must represent a reliable source of information as perceived by the client system.

The Social System and Planned Change

The social system, or local school system, or client system, was alluded to in the previous section on communication, with communication being viewed as the "mortar that holds together the bricks of human behavior." Of concern here will be such things as the sociocultural factors of the immediate community in

which the school is located, as well as some general characteristics of the school system itself.

Just as nations are classified as having open or closed societies, so are school systems. Some of the determinants of "openness–closedness" are the extent to which: (1) external contacts are initiated and maintained; (2) the quality of this interaction is established and maintained; (3) major decisions concerning changes that occur locally are made externally; and (4) local coordination exists between educational programs and other programs of community improvement.

Levels of the Interactional Perspective of the Social System. Already mentioned in a previous section have been the elements of defining the interactional community. These were: (1) community as a configuration concerning ways of life, achievement of collective goals through fellowship and sharing of basic beliefs and values; (2) community as place and people, the ecological and demographic; and (3) community as collective action, focusing on behavioral process.

Corresponding to these three elements of definition are respective levels needed for accurate analysis and understanding of community. These levels are: (1) the institutional or cultural; (2) the ecological; and (3) the interactional. Three key concepts at the interactional level are the actor, the association, and the action. Social structure derives from the roles of leaders and other actors as they are interrelated in associations. Social process derives from analysis of actions.

Differentiation Between Group and Institution. To gain deeper insight into the main topic of this section–the interactional community–the distinction should be made between group and institution. Institutions as used here are cultural patterns, the accepted ways of meeting needs. They are common answers to collective problems. Groups, on the other hand, are associations of people serving as vehicles for the behavioral aspects of the institution. The distinction is best made by example. For instance, education as an institution is expressed in legal codes, rules, guidelines, and other well-established policies and practices. Physical aspects are its buildings, equipment, transportation facilities and personnel records. The groups or associations that express the educational institution are the student body or individual classes, the school board, the PTA and the like. The faculty also is a group and must be categorized into subgroups for accurate analysis of their special roles with regard to effecting change.

Meeting Basic Societal Needs. Briefly mentioned here will be the three basic needs that must be met by all societies, large or small–the local ones, the communities, and even the larger national ones. These universal needs are production, socialization, and social control. They are significantly related to vocational education programs because vocational education is designed to serve production, but is administered through socialization agencies, with constraints and limitations being applied through social control. The significance of these relationships is shown in the following paragraphs.

Economic institutions have as their primary focus production and the interrelated process of distribution, with decisions being made in the corporate marketplace, which is sometimes viewed as the "community of work." By contrast, the processes of socialization, especially those dealing with the young, take

place largely in the primary groups (family, church, and school), or what is referred to by some as the "community of residence." Social control operates wherever human action takes place. Informal controls are dominant in primary groups, whereas legal and law enforcement controls are prominent in the larger society.

In a free-enterprise system like ours the central economic institution is the market, which like interactional community, knows no geographical boundaries and might best be understood from the interactional perspective. The main point to be understood here is that very few, if any, market decisions of any consequence are made in a given locality, especially the small community. The same might be said regarding decisions about educational innovations; few, of any great consequence (pervasiveness), are made locally. It has been shown that "the sources of innovation lie largely outside the local community, and in most instances, outside the educational profession." (Pellegrin, 1966:15). True, decisions to adopt an innovation might be made locally; but the normative decision of what that innovation ought to be, or what it ought to have been before it reached the local school, likely was made elsewhere, unless the local school has established, through planned change, a setting that is conducive to innovativeness.

One major obstacle to the creation of an attitudinal-behavioral atmosphere in local schools that is conducive to change may be the fact that innovations usually are communicated downward from a few leaders and are not, therefore, a synthesis of the thinking of societies that are being served by the schools. Most behavioral scientists believe the seeds of change lie within the local social structure itself.

One of the most frustrating dilemmas is that on the one hand vocational and technical education seeks to serve economic institutions (production), but on the other hand, it is administered and directed through socialization processes and institutions. And, to add to this complexity, certain measures of social control are exerted over the school's operations. When planning for change, this situation then causes vocational and technical educators to be faced, not with a dilemma, but a trilemma.

Because such problems exist, they give rise to possible inter-institutional conflict where, for instance, the economic institution criticizes the education institution for the improper preparation of youth for the world of work. Such criticism has caused some vocational educators to ask for more cost-benefit[1] studies to be made in an effort to determine how best to prepare an efficient worker. Cost-benefit studies make a definite contribution to the overall program evaluation effort. But it is well-known that some things cannot be easily expressed in cost or monetary terms. For instance, it is extremely difficult to put a dollar value on certain aspects of job satisfaction, personal dignity afforded by work, individual commitment to task completion, and the like.

Because of the limitations of cost-benefit studies, another type has been suggested, the cost-effectiveness[2] study. Focused on efficient attainment of ob-

[1] Cost-benefit analyses provide means for comparing resources (cost) of a specific project with the results (dollar benefits) likely to be obtained.

[2] Cost effectiveness analyses provide means for measuring the extent to which resources allocated to a specific objective under each of several alternatives actually contribute to accomplishing that objective, so that different ways of attaining the objective can be compared.

jectives, cost-effectiveness studies usually fail to treat in sufficient depth the all-important processes by which the initial objectives are established at the outset of an action program. It is worthwhile to note here that objectives usually are derived through an interactional process, the consideration of which demands attention to structure, leadership, styles of action, and the like, not only in the school itself, but also in the community or environment in which it is found.

Scope of Change-Producing Projects. Many times the projects initiated to bring about change in vocational and technical education programs are related to a larger, more inclusive community process, such as a health action program, an economics action project, or an education action project designed to improve the total school system. The extent to which a project involves local institutions, other than education including vocational and technical education, will determine whether it is a community or a noncommunity project. For example, a project to change the format of student report cards is not a community action project. On the other hand, a project to initiate a cooperative vocational education program, which might possibly involve the economic, medical and other similar institutions, would be classified as a community project. When related to community, the extent of effectiveness of a change producing vocational and technical education project will be based primarily on its scope.

Scope has the following dimensions: (1) the degree of comprehensiveness of interests pursued and needs met; (2) the degree to which action is identified with the locality, even though external resources may be used; (3) the relative number, status and degree of involvement of local residents; (4) the relative number and significance of local associations involved; (5) the degree to which the action maintains or changes the local society; and (6) the extent of organization of the action, both local and external agencies being considered.

Leadership and Action Style. Two of the most important variables in analyzing behavior connected with any project that is designed to produce change are leadership and action style.

Leadership roles are defined as contributions by individuals to task accomplishment or to maintenance of relationships among actors through behavior in one or more phases of a project. Roles within a project may be differentiated according to phase and according to the level of influence exerted by the actor in a given phase.

Two types of roles are distinguishable: those of the generalized leader and those of the limited interest leader. The generalized leader participates in many projects and possibly more comprehensive projects, and is likely to be involved in several phases of the action. The behavior of generalized leaders provides the continuity that is so necessary for identifying community structure. Their behavior likewise provides the means through which the community structure can be related to a given project, such as some type of project designed to improve vocational and technical education.

The limited interest leader participates in a single project, or sometimes in many projects, all of which reflect a single interest. An example of a limited interest leader is best portrayed by the local agent of a national or state bureaucracy. He usually is motivated to play his role more because of

occupational requirements than because of his general commitments to the improvement of the local society. Another type of limited-interest leader is the technical expert whose participation often is solicited by other actors because of his skill in a particular activity. Limited-interest leaders, especially those who play skill roles, tend to contribute more to task accomplishment than to maintenance of local social relationships, which are deemed crucially important to the establishment and maintenance of an environment that is conducive to planned change.

Thus, it seems reasonable to suggest that these types of leaders be adequately identified in localities where change-producing projects in vocational and technical education are to be initiated. But too often in the past, those who comprise the power structure have been confused with those who comprise the true leadership structure in communities.

Other aspects of community power or leadership structures as they relate to educational change in local systems have been revealed through studies conducted by Johns and Kimbrough (1968) over a period of more than 15 years through the Department of Educational Administration at the University of Florida. Using social systems concepts, they derived two basic classifications of school districts: competitive (characterized by openness) and noncompetitive (characterized by closedness). They found that school districts having noncompetitive power structures exhibited low financial effort, whereas districts having competitive power structures exerted high financial effort. Their data about the characteristics of community influentials of the power structures showed that: (1) low financial effort districts had high proportions of economic leaders, (2) high financial effort districts had high proportions of political leaders, (3) numbers of adult relatives per leader who resided in the same school district were greater in the low financial effort districts than in the high financial effort districts, and (4) a much higher number of the leaders of low financial effort districts were native born. Johns and Kimbrough (1968) stated that "the nature of the power system of a school district may be very important in educational change." Also, "the stronger the family (kinship) ties among participants in a community power structure, the more probability for closedness to progressive changes."

It is a well-known fact that youth educated in one community will find work in other communities. Better employment opportunities require better training. Schools traditionally have been the principal public means of introducing youth to a broader world than home. Self-centered or unenlightened local control–power structures of various types–may mean that those who make policies and decisions are not cognizant of future demands for skills which should be developed by vocational and technical education programs in local schools. Local public school decisioners may be generally familiar with occupations, but they may have virtually no comprehension of the skills needed for working in them. Most of these kinds of decisioners are concerned only with budgeting and personnel; they usually focus on problems they know they can solve, but not those that need to be solved. The power structure type of local control, as opposed to a leadership structure, may resist all change and not permit the vocational and technical education program to look outward and forward.

The sytle of action mentioned here refers to the quality of relationships among leaders and other participants. Styles of action can be best seen by using the polar types which have been described in many case studies of planned change.

At one end of the continuum is found consensus which is characterized by agreement among participants as to goals and strategies and easy communication through identifiable coordinating structures in the school and the community. Lying at the other end of the continuum is dissensus with its characteristic disagreement among participants, interaction primarily through cliques or factional associations, and limited communication. The extent of success of innovativeness in school and community depends in large measure upon the ability of local vocational and technical educators to accurately locate their schools and communities on such a continuum. This seems to be a prerequisite to, if not the very first step toward, plotting strategies for effecting change in local programs of vocational education.

The Time Element and Planned Change

Time is the fourth key element to be considered in planned change, and it is apparently multidimensional. The stages of change processes, treated in a later section of this paper, are closely related to the time element.

The rate at which innovations spread or diffuse is a concomitant of the time element. Macrocosmically speaking, from a time perspective, adoption rates might vary according to general economic and social conditions. For instance, the depression of the Thirties probably retarded adoption rates as compared with the influence exerted by the improved and expanded economy of the Sixties. Flexibility and readiness must be present before a society and its groups innovate, and these usually develop during crises such as the depression and World War II, which seem to have laid a foundation for rapid change in the late Fifties and Sixties. Similarly, mass communication media and their influence on adoption rates in former periods were not as pervasive as to type, effect, and extent of coverage as they currently are.

The relationship of time to planned change can be viewed from still another, more microcosmic angle. This view has to do with time as it relates to durable organizations (local school system) and temporary systems (Miles, 1964) as they impinge on elements in strategies for planned change. Miles defines durable organizations as permanent structures such as the school, the college, and the government agency (state departments and their divisions) which have extended lives. He defines temporary structures or systems as conferences, conventions, institutes, seminars, workshops, consultant-client interactions, which may have a permanent cadre of planners-conductors, but which are temporary insofar as an ever-changing series of client systems is concerned. He summarizes the implications of the time element by saying that "in permanent organizations, the possibility of postponement of activity always exists," which gives rise to a tendency for the "future-oriented time perspective" of a person to become vague and less salient. Such a perspective results in a feeling that, "I can always do that tomorrow, or sometime." A temporary system tends to narrow the time perspective and causes persons to focus attention upon an immediate

problem, which in turn tends to result in the production of change in at least attitude, if not in behavior.

Temporary systems and other short-duration elements of strategies bring persons together in a group for the purpose of gaining new insights and skills concerning an innovation or a change. Some of these types of activities pull persons away from their parent school systems, and usually, only one person attends from a single school system. The time perspective is compressed and attention is highly focused on a specific topic or theme, possibly an innovation. After acquiring new insights and skills, the individual returns to the parent school and to his co-workers who have not had the opportunity to gain these same new experiences. Upon return, the changed individual encounters unchanged groups in an unchanged school and frequently is quickly changed back to his former psychological outlook and postponement tendency. Consequently, temporary systems which focus on changing the system instead of merely changing the individual would seem to have merit in many cases. But the tendency always seems to be to focus on the individual and not the entire system, since organizations are naturally reluctant to permit tampering with their structure.

Frequently, much time is required to identify innovators within a system and to gain administrative support for implementing an innovation. Russell (1972) has developed and tested an instrument which is designed to measure the change orientation of vocational teachers in order to identify potential innovators and to identify teachers who are most receptive to change. The use of his instrument would seem to be worthwhile as one component in a strategy for effecting change in a local program of vocational education. Still more time is needed to assess the impact of the innovation and to evaluate the strategy or strategies to be used to get it implemented.

Probably the only safe generalization which can be made concerning the rate at which decisions are made to adopt innovations was expressed by Lionberger (1960) when he stated that "the decision to adopt usually takes time." The variables involved in adoption are innumerable, but they can usually be placed in one of three categories: actions, actors, and associations. Coordinating these in an interdependent fashion requires time.

Summary

The foregoing has been a discussion of some of the more important and controlling principles, beliefs, practices, and phenomena comprising a rationale for planned change. The discussion attempted to establish a basis for better interpretation of subsequent material included herein.

THE CHANGE PROCESS

There is a decided reluctance on the part of the writer to label this part of the document "The Change Process" because there are apparently more change processes than one. In addition, there is no one "best" process, just as there is no one "best" strategy for implementing change. There are definite similarities in all models used to explain the change process.

Although they are closely related, there needs to be a clarification at this point between change "process" and change "strategy." Process is how change occurs; strategy is how to get change to occur. Researchers in various disciplines have studied changes as social phenomena. They have derived steps or phases to help delineate and explain the change process. Their findings have aided tremendously in formulating improved strategies for implementing change.

A strategy is a well-defined, discernible direction for planned change. A strategy for changing usually is composed of phases of an action program, with each phase being comprised of techniques or tactics for accomplishing objectives of each phase. The following section of this paper further defines the term "strategy."

Process Defined

The term "process" needs to be operationally defined in order to be fully appreciated in a planned change context. The term means a cycle of events used to explain how change occurs, or how change has occurred. Process is cyclical; its steps have been found to recur in many studies of change; it is perpetual, continuous, dynamic. Usually, the steps in a process are sequential; certain things take place before another step is begun. However, in some instances, two or more steps can be accomplished simultaneously; hence, models used to explain the process must include the necessary ingredient of flexibility.

People from various disciplines have formulated different "models," using all types of terms, to explain the change process which they have studied. They have included similar activities in all the models, but frequently place the same kind of activity under different steps in an effort to fit their model to a specific discipline.

Evolution of Process Phases or Stages Relating to Change

Lindeman (1921) was among the pioneers in the delineation of phases of social action. He conceptualized the derivation of his model with 10 action phases, but cautioned that not all action (change) programs originate alike, nor do they pass logically through the same sequences of steps. Beal (1964) expressed similar cautions and limitations, but recognized the need for action (change) agents to approach the change process with some sort of model in which heuristic stages are delineated. He further recognized the following

assumptions as being basic to the use of such change process models: (1) any successful action program consists of a complex set of interrelated functions; (2) these functions may be integrated to form an action flow from idea inception to implementation or termination; (3) for model development and research, the action flow may be separated into heuristic stages; and (4) it is methodologically feasible to observe, record, and measure the empirical referents in the model. The last assumption is especially important to the practitioner (change agent or client system) when evaluations are made of the overall innovation impact, change process, and strategy of implementation.

The information presented in Figure 1 represents a summary of merely a few examples of models posited by authors in various disciplines as they attempted to conceptualize the social or change process by phases or steps. Lewin's (1947) model represents a rather comprehensive body of literature on change or decision-making as a generic process in group dynamics. Kaufman's (1959) model is representative of a number of models which set forth the phases of action programs in a community interaction context. The conceptualization of Lippet, *et al.* (1958) is representative of a large body of literature concerned with planned change and practice adoption. Drucker's model (1954) represents a substantial amount of literature on managerial decision-making.

Lionberger's model (1960), also alluded to by Rogers (1962), is a synthesis of research findings of rural sociologists (Subcommittee for the Study of the Diffusion of Farm Practices, 1955) in their work on agricultural practice adoption by individual farmers. The model conceptualized by Farnsworth (1940) was derived from research findings in education and stemmed from the vast works of Mort and Cornell (1941) and others at Teachers College, Columbia University. Griffiths' model (1959) pertains more specifically to educational administration change theory and will be used later in this section to emphasize a process of change.

In addition to the models included in Figure 1, there are others of more recent vintage, but not necessarily of vastly different content. Fox and Lippitt (1964) listed the following steps in a model for change:

1) Development of need for change (motivation and sensitivity);
2) Psychological acceptance of a source of help (help acceptance);
3) Formulating goals for change (conceptualization);
4) Skills, transforming intentions into action (intent-skill integration); and,
5) Consolidation of change (evaluation).

In one of his many publications on school administration, Paul Mort (1946) recognized seven stages in what he termed education "adaptation," or change. These stages are: (1) the emergence of a need; (2) the recognition of the need; (3) the definition of the need; (4) the invention of ways and means of meeting the need; (5) the introduction of the invention into one or more communities; (6) the improvement of the invention in actual practice; and, (7) the diffusion of the invention through the schools of a state. With slight modification this is the same pattern or stage concept derived by Farnsworth (1940) and Bateman (1940).

FIGURE 1

EXAMPLES OF MODELS THAT DELINEATE A CHANGE PROCESS

	LEWIN	KAUFMAN	LIPPITT	DRUCKER	LIONBERGER	FARNSWORTH	GRIFFITHS	GUBA-CLARK
1.	Unfreeze	Rise of interest	Discover need for change	Problem definition	Awareness	Recognize and articulate need	Problem definition	Research
2.	Move	Organization and maintenance of sponsor	Establish help relationship	Analysis of problem	Interest	Propose a solution	Identifying alternative approaches	Development a. Invention b. Design
3.	Refreeze	Goal setting	Identify problems	Develop alternative solutions	Evaluation	Create interest in suggested solution	Data gathering and analysis	Diffusion a. Dissemination b. Demonstration
4.		Gaining & maintaining participation	Examine possible solutions	Choose best solution	Trial	Demonstrate usefulness	Decision as to best alternative	Adoption a. Trial b. Installation c. Institutionalization
5.		Carrying out activities	Try solutions	Convert solution into action	Adoption	Invite group and public interest	Programming & budgeting	
6.			Generalization of change			Obtain official approval & financing	Control coordination & adjustment	
7.			End of helping relationship			Remove legal restrictions	Evaluation	

Another model which seems to be somewhat more comprehensive than some others is that of Guba and Clark (1965), appearing here in Figure 2 as it was published in the *Strategies for Educational Change Newsletter.* The Guba-Clark Schema differs from the other models of change noted above in at least three ways. First, it is a schema of processes, not just a single process; hence, the schema may be more of a strategy, or a series of strategies, than a change process. Second, and more important, it includes a research process and a development process as separate, but interdependent actions. Third, it differentiates between a diffusion process and an adoption process. In the same issue of the *Strategies for Educational Change Newsletter,* Virgil E. Blanke explained that the Guba-Clark research-action schema was an attempt at conceptualization of processes which have potential for closing the recognized "theory-practice gap" in education. This gap has been around a long time. Such a gap or lag was alluded to by Mort and Cornell (1941) among others, when they stated that

> we seek to reveal some of the factors which should be taken into consideration in reducing the lag between the recognition of need, the invention of means of meeting the need, experimentation with such inventions or discoveries, and the rapid diffusion of generally accepted methods throughout the schools of the land.

Guba and Clark (1965) indicated that their model was constructed on logical grounds and was not supported by empirical research. They also recognized that not "every activity necessarily begins with research, moves through development, diffusion, and adoption stages into some kind of well-established practice." They further recognized that research may be completely absent in certain areas, or it may be so conflicting or ambiguous as to be inappropriate for use in a practical situation. They noted limitations in their model because it was a unidimensional analysis of change roles which are influenced by a multidimensional range of variables. Also recognized by Guba and Clark was the fact that many fine innovations are based on experience and intuition, not on research, and only when implementation by practitioners is begun do researchable questions begin to emerge. This seems to be a basis and justification for continuous interaction between the client system, the change agent, and a research-development agency. It implies a need for attention to a research interpretation effort that currently does not exist in any formally organized fashion.

Still another model is the "output-oriented" model derived by Gideonse (1968) to "create a heuristic which (a) illustrates the essential differences between research and development activities and (b) shows how the two are—or can be—related to one another and to the operating educational system." His model is somewhat more complex than other models depicting the change process. The model treats separately the research, development, and school operations as being different but interdependent functions, each with different objectives or outputs. Gideonse's model is nonlinear, implying that "initiative for action of quite different kinds can take place at any point." In this sense the model allows for the possibilities of interaction between and among persons operating in either research, development, or school operations. Such interaction

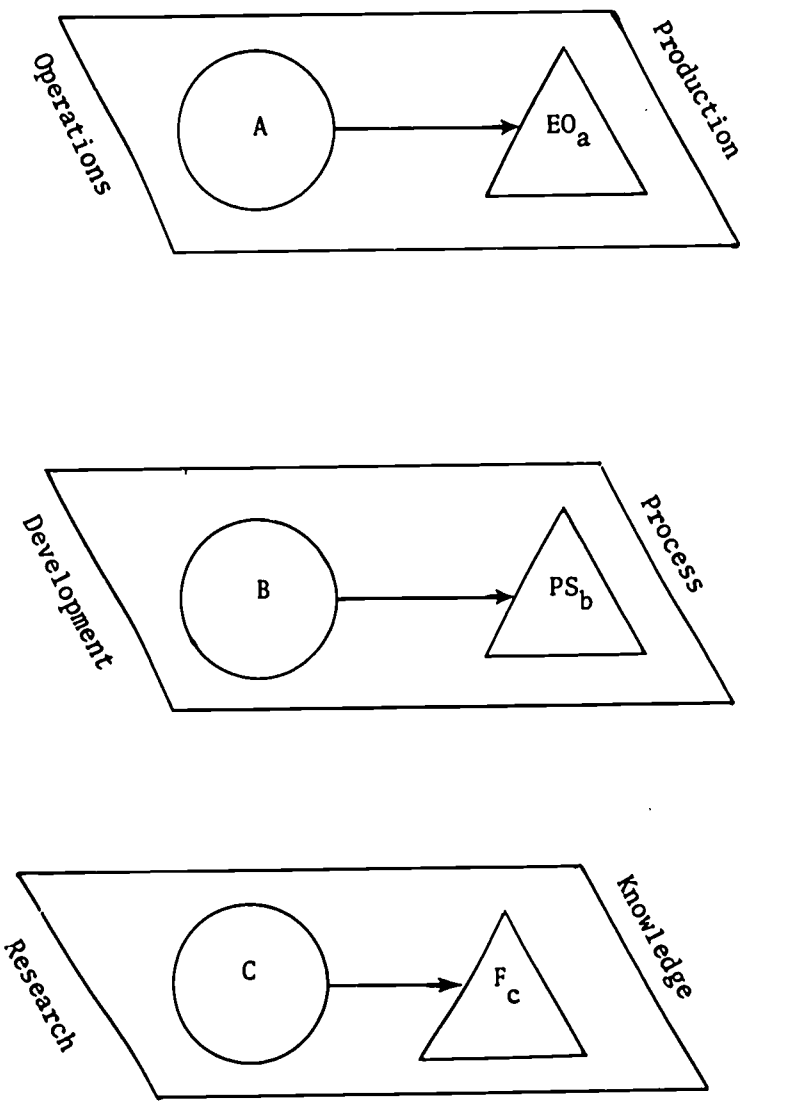
FIGURE 2

A CLASSIFICATION SCHEMA OF PROCESSES RELATED TO AND NECESSARY FOR CHANGE IN EDUCATION*

	RESEARCH	DEVELOPMENT		DIFFUSION		ADOPTION		
		INVENTION	DESIGN	DISSEMINATION	DEMONSTRATION	TRIAL	INSTALLATION	INSTITUTIONALIZATION
OBJECTIVE	To advance knowledge	To formulate a new solution to an operating problem or to a class of operating problems, i. e., *to innovate*	To order and to systematize the components of the invented solution; to construct an innovation package for institutional use, i. e., *to engineer*	To create widespread awareness of the invention among practitioners, i.e., *to inform*	To afford an opportunity to examine and assess operating qualities of the invention, i. e., *to build conviction*	To build familiarity with the invention and provide a basis for assessing the quality, value, fit, and utility of the invention in a particular institution, i.e., *to test*	To fit the characteristics of the invention to the characteristics of the adopting institution, i. e., *to operationalize*	To assimilate the invention as an integral and accepted component of the system, i. e., *to establish*
CRITERIA	Validity (internal and external)	Face Validity (appropriateness) — Estimated Viability — Impact (relative contribution)	Institutional Feasibility — Generalizability — Performance	Intelligibility — Fidelity — Pervasiveness — Impact (extent to which it affects key targets)	Credibility — Convenience — Evidential Assessment	Adaptability — Feasibility — Action	Effectiveness — Efficiency —	Continuity — Valuation — Support
RELATION TO CHANGE	Provides basis for invention	Produces the invention	Engineers and packages the invention	Informs about the invention	Builds conviction about the invention	Tries out the invention in the context of a particular situation	Operationalizes the invention for use in a specific institution	Establishes the invention as a part of an ongoing program; converts it to a "non-innovation"

*The Guba-Clark Schema described in this Newsletter is from their paper, "An Examination of Potential Change Roles in Education," which was among those delivered at the National Education Association – Committee for Study of Instruction Symposium – Innovation in Planning School Curricula at Airielhouse, Virginia, October 2-4, 1965.

FIGURE 3
AN OUTPUT MODEL OF EDUCATIONAL RESEARCH AND DEVELOPMENT (GIDEONSE, 1968)



frequently occurs. Just as there is flow from research to development to operations, Gideonse's model indicates that there may be a similar backward flow from operations to development to research.

As shown in Figure 3, Gideonse graphically depicts the three "planes" of research, development, and operations activities. For each activity, he indicates that there is an "initiative leading to an output characteristic of that activity."

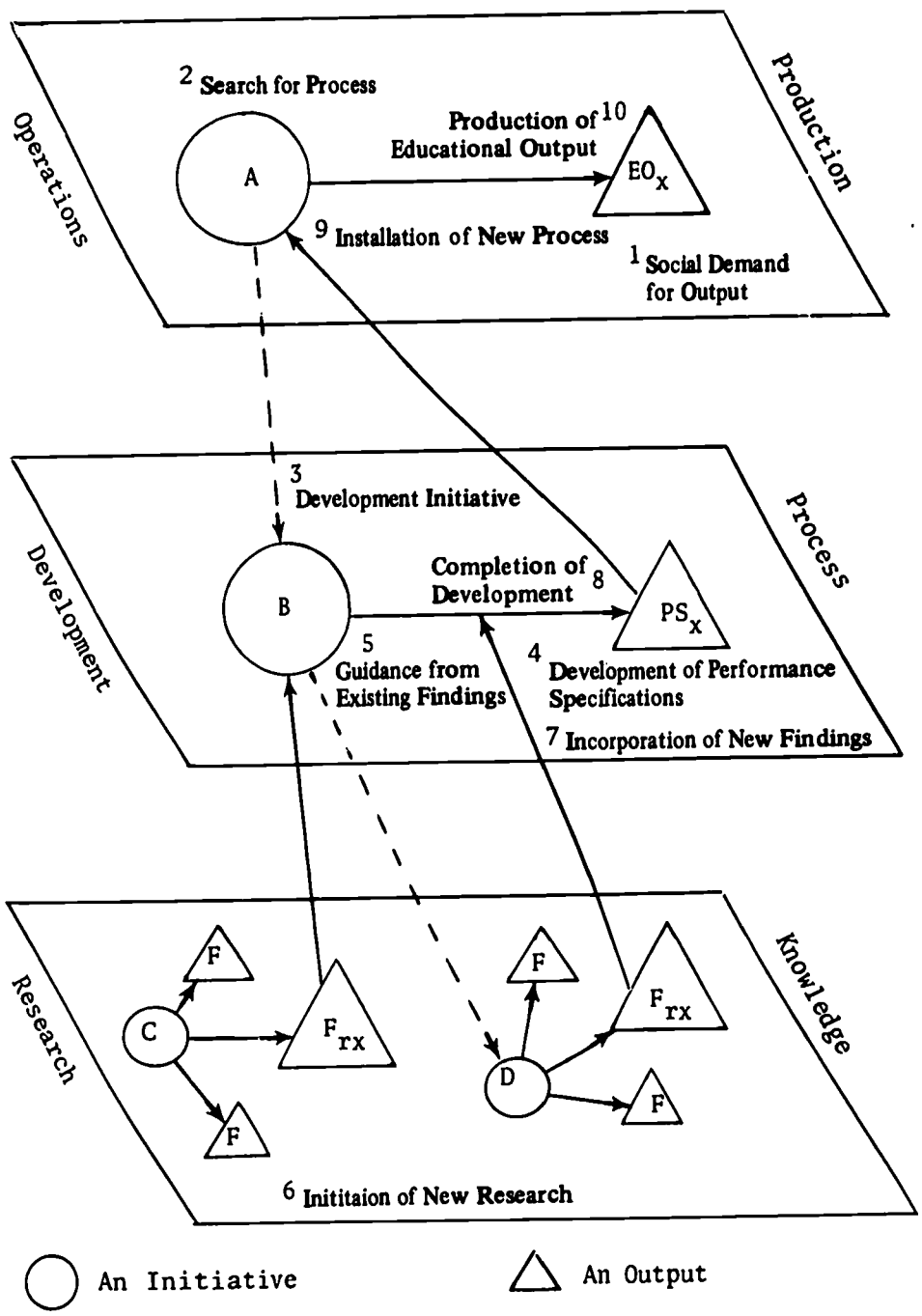
Research is conducted to generate new knowledge, the specific outcome of which frequently is not predictable at the beginning of the study. In the research plane of the model, "C represents an initiative undertaken which culminates in a research finding represented by F_C."

Development activities produce processes, materials, hardware, and organizational formats for instruction which accomplish prespecified objectives. When a development activity is begun, the objective is known or established at the outset and is stated in terms of "performance specifications" (PS). In the development plane, "*B* indicates an initiative undertaken for development culminating in the creation of a process which meets performance specifications PS_b."

Operations of a school are focused on production, according to Gideonse. The object is "to act upon human beings in order to train and develop in them various skills, attitudes, beliefs, and knowledge calculated to serve both society and themselves." The model of Gideonse recognized *"the weight of the responsibility on the school administrator for choosing the right kinds of processes to achieve the outputs that society and individuals specify."* In the operations plane, "A represents an initiative to install a process leading to the production of education output EO_a."

Gideonse (1968) provides detailed explanation of the model by using a "walk-through" as shown in Figure 4. His example is only slightly modified here in order to relate the model directly to the field of vocational and technical education. The example follows: EO_X at No. 1 symbolizes the demand for a certain kind of educational output, e.g., employers demand higher skill achievement for students in the auto mechanics program. This demand creates pressure on the school administrator (and possibly on his vocational and technical education staff) to respond with some sort of initiative. That initiative is represented by *A* at No. 2. It symbolizes his search for an effective process to install and, not finding it, he calls for a development initiative (B at No. 3). Next, performance specifications (PS_X at No. 4) are developed to correspond to the demanded output. Once the specifications for the development project are established, the next step is to survey related research, seeking guidance for the development effort. The search is conducted and the finding (F_{rx}) of relevance to the performance specifications and the desired educational output (e.g., the significance of employer attitude toward better-trained mechanics) is incorporated into the development project (No. 5). The call for additional research assistance is symbolized by *D* at No. 6, and the incorporation of relevant findings (again F_{rx}) from that initiative into the development effort is symbolized by the solid arrow to the development line at No. 7. Number 8 represents the completion of the development project, No. 9 the incorporation of the process into school operations, and No. 10 the production of the desired

FIGURE 4
A "WALK-THROUGH" OF THE MODEL (GIDEONSE, 1968)



output, resulting in higher skill achievement for students in the auto mechanics program.

To show further efficacy of the model, Gideonse used Figure 5 to depict other possible interactions among research, development, and operations activities. Some of his examples follow with minor modification, in certain instances, for use in vocational and technical education.

Example: A responsible school official feels the need to evaluate or assess the degree to which the vocational and technical education programs are serving a particular target population. He calls for an initiative in research, which is represented by the A/D/F-F interaction.

Example: An organization, e.g., a curriculum development unit, engaged in development concludes independently that it would be useful to develop a certain process or product for instruction. This is represented by the B/PS_b interaction.

Example: Research, e.g., by an RCU, is initiated for its own sake and pursued solely for the knowledge which it produces. No findings have yet been incorporated either in development or in operations. This is symbolized by the C/F-F-F relation in research.

Example: Research initiated for its own sake yields the finding that a certain vitamin supplement administered between the ages of 5 and 7 can prevent a form of mental retardation, the appearance of which cannot be detected until somewhat later. This finding need not pass through development, but can be implemented directly into school operations, if desired. This kind of research-to-practice relationship is illustrated by the $G/F\text{-}F/H/EO_g$ interaction.

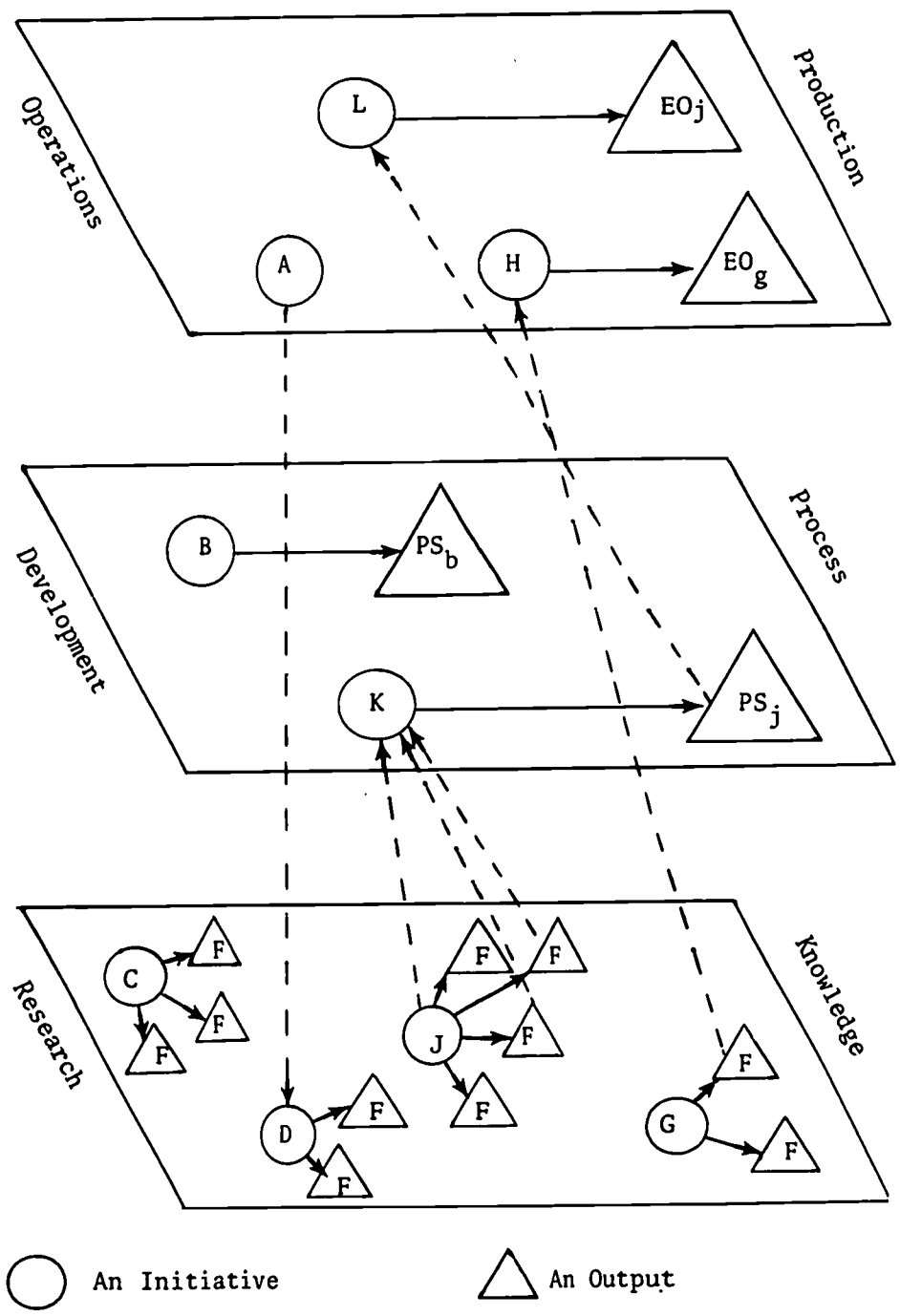
Example: Research in career choices and vocational maturation uncovers a number of findings which suggest the development of processes and environments which can actively enhance the career development program. Development efforts are consequently supported and carried through to completion. The availability of the resulting products and processes is made known to educational administrators who are thereby persuaded to incorporate the newly developed instructional program into the nation's educational system. This kind of sequence is represented by the $J/F\text{-}F\text{-}F/K/PS_j/L/EO_j$ interaction.

Gideonse's model is valuable for the researcher who can use it analytically. It also has value for the astute administrator who wishes to understand the change process in education better and who may be seeking viable strategies for implementing a change. Gideonse states that "the model is structured to illustrate that the incorporation of research findings into development is just as important and oftentimes as difficult a proposition as incorporating newly developed processes into operational settings."

Summary

From the foregoing material it can be inferred that the change process may be only one element in planned change. A thorough understanding of the change process, or change processes, seems necessary on the part of all persons who desire to innovate. It can be assumed that there are similarities in change processes, whether the change itself affects culture, the community, a local

FIGURE 5
A SAMPLING OF OTHER POSSIBLE INTERACTIONS
(GIDEONSE, 1968)



school system, other types of organizations, a large or small group, or an individual.

By way of completing the summary for this section, Griffiths' model (1959) (see Figure 1) slightly modified, will be used to help elaborate the stages of the change process. The selection of this model from among others in Figure 1 was arbitrary and borrows heavily from the work of Griffiths. The ensuing discussion is not an example of what has been done in order to effect change, but rather what might be done; hence, the intent is to help bridge the gap, if one exists, between process and strategy. To indicate that the process is cyclical, and because of the ever-present need for evaluation, it was decided that the evaluation/assessment stage would be the point of entry into the process, even though it appears as the last stage or step in Griffiths' model. Also, it was thought that this model could be viewed as being designed to link ideas and arrangements necessary for effecting change in local programs of vocational and technical education.

Start with some form(s) of evaluation

In actuality, the process can be entered into at almost any step. However, the consensus among most persons seems to be that the *Evaluation* step should be the point of entry into the cycle. This is the step where planners, and others desiring to effect change, take a look at "what is." If program objectives have been previously established, to what extent have they been reached? It may be decided to apply various measures of objective achievement.

One approach might be short, intensive but candid, discussions among the local vocational and technical education staff members, followed by discussions involving other school staff/citizen groups in meetings. If program objectives focus on student outcomes—what has happened to students who have graduated or dropped out—then student follow-up surveys may be in order. The results of self-evaluation which have been derived for accreditation purposes may be useful in this step. Of value also may be findings of student vocational interest surveys and attitudinal expressions of parents and faculty members toward vocational education. (See Byram, 1971, for examples and approaches to local program evaluation.)

Although this initial evaluation may not be as comprehensive as desired, it will serve to either tentatively justify the program as it exists or point up problems that need attention. The important thing to remember is that the process has been entered into, and if there is an aspect of it that is perpetual or continuous, it is the step called "evaluation."

Likely outcomes of this step should be the formulation of tentative: (1) long-range aims; (2) intermediate goals; and, (3) immediate objectives. All of these should be based on a written statement of philosophy as envisioned by the school and community. The philosophy, aims, goals, and objectives should be reexamined perhaps annually by the staff and modified, if necessary, in light of the school's experiences, research, and suggestions of advisory committees and councils.

Most aims-goals-objectives should be: (1) measurable, (2) projective, (3) timely, and, (4) usually stated in terms of behavioral change outcomes. Aims are usually broad and long-range; goals are somewhat less general and medium-range;

whereas, objectives are highly specific and usually are always short-range. Behavioral statements mean that the learner will be able to do something specific as measured against some standard(s) of quality, and within a specified length of time.

Problem definition or elaboration follows evaluation

Certain findings resulting from evaluation may serve to stimulate discussion and definition of problems, especially if used with citizen advisory groups. Too frequently, problems identified are not well defined; too little time is spent articulating them. What is sometimes stated as a problem may, in actuality, be only a "symptom" of some deeper-seated problem. For instance, it has been stated that students tend to drop out of school because of "lack of interest." Was it lack of interest in a course or courses? If so, would more comprehensive vocational and technical education offerings reduce the dropout rate?

The matter of problem definition cannot be dismissed lightly. Procedures used in obtaining sharp, clear, explicit awareness of problems frequently have traumatic effects on some people. These individuals feel threatened when they get into depth discussions of problems. When such fear is present in problem-defining activities, then the real issues are dealt with only superficially, and inaction and atrophy set in to influence the remainder of the process. Vocational and technical education planners and change agents must condition themselves for the "hard look," the introspective, critical assessment.

Necessary to problem definition are trends that show population, occupational, and technological changes. Also needed is information on population to be served, its characteristics and needs, and employment opportunities, not only in the local area served by the school, but in a wider, more inclusive (possibly state, regional, or national) area.

Determining alternative approaches or solutions is logically the next step

Most problems have more than one approach to solving them; hence, decisions have to be made. All approaches or courses of action should be stated in a tentative manner. Criteria must be established in this step to determine how the tentative solutions will be judged or compared with each other; i.e., the question must be answered: How will we know if the selected solution is a satisfactory one? In this crucial step, the value orientations of the individuals and the collective aspirations of the entire educational system are built into the process.

As criteria for judging solutions to problems are determined, it might be worthwhile to consider them in light of two concepts: civilization and culture.

Our civilization is utilitarian and is composed of physical and social aspects. The physical aspect is best seen through man's control over his environment and is typified by the engineer and the mechanic. The social aspect is seen in our "economic" and "political" systems and is typified by the banking system and the ballot box.

In contrast, culture is the realm of values, of styles, of emotional attachments, and of cognitive activities. Thus, most of the people, ideas, and

things, with which and with whom we work daily have elements of the cultural as well as the civilizational.

Likewise, vocational and technical education planning for change has both civilizational and cultural dimensions. Buildings, the programs conducted in them, the persons conducting these programs, and the students, all are the objectives to be considered. Each of these objects should be subjected to the criterion question: Do we want these things themselves, or do we merely use them to obtain some other things we want? For instance, do we want the buildings and equipment for themselves, or do we want them in order to prepare students to live, work, and continue their education successfully after leaving school? By answering the criterion question stated above, the planner is a step closer to better stating aims, goals, and objectives behaviorally. They need to be stated in terms of outcomes, or what students need to be able to do after they leave school. Likewise, measures of student behavior after leaving school must be devised. The student follow-up offers much help in this regard.

Data gathering and analyzing of information is the next step

The question "What data?" should be kept in mind throughout the process. Frequently, more data than can be used are collected. Data collected periodically over the years will show trends, e.g., vocational program enrollment trends. Similarly, student follow-up data, if collected each year on each graduate for perhaps five years after he leaves school, will reveal trends in (1) additional educational attainment, (2) employment, (3) geographical moves (migration), (4) socioeconomic mobility, (5) career pattern followed, and others. If such comprehensive follow-up data are not readily available, a local school might conduct a follow-up on graduates of five or ten years ago to get some measures of what they have done since graduation–their occupational behavior, satisfaction with job or jobs, further education or training, and the like.

Special data-gathering activities should be initiated to fill "gaps" in the available information. For instance, a special follow-up of dropouts undoubtedly would be quite revealing. Surveys of local businesses, industries, and firms could be used to supplement data obtained from the local Employment Security Office. It might be helpful to survey students currently enrolled in school to get measures of their part-time job behavior. Such surveys do not necessarily need to be conducted annually, but frequently enough to depict trends for the area served by the school.

Data gathered routinely by various existing agencies may not fill all the needs in vocational and technical education planning. Frequently, agencies must adhere to boundaries and lines which limit their jurisdiction. However, vocational education planners recognize that people do not pay too much attention to district boundaries, county or state lines, when a job is concerned. They move across them almost without thought, or they commute daily across them. Hence, special or supplementary data-gathering activities may need to be initiated to determine what people actually do, where they go, and in what occupational families they should receive education.

All data should be subjected to critical appraisal in terms of their: (1) source, reliability, validity; (2) pertinence to vocational and technical education

planning; (3) projectivity; (4) analyses and interpretations; and, (5) manner of presentation.

Selecting the best alternative from among all recognized possibilities is decision-making

In effecting vocational and technical education change, many decisions must be made, but each alternative is selected from within its own unique set. The alternatives that are selected constitute the major changes to be made in the program. All that has gone on before in the process culminates in decision-making at this point.

All possible alternatives are reviewed, the consequences of each are weighed, probabilities of success are assigned, and the selection of a single solution from within each set is made. The selected alternatives or solutions must be compatible with each other and with decisions already made which affect the remainder of the school system and the community. If the change model has been followed up to this step, it is readily apparent that decisioning is an evolving process; it is continuous. It is a sequential outgrowth of decisions, or subdecisions, made earlier in the model. Major decisions are determined by the multitude of minor decisions made along the way.

It is at this point in the process that tentative objectives stated earlier should be reviewed and reaffirmed and /or revised, then adopted as being those toward which the total efforts of the program will be directed.

The evolutionary nature of the process being considered here may cause some persons to feel that this particular step is unnecessary in the model; but the importance that should be attached to a review of all alternatives, and the desirability of consulting with individuals within and without the local school system concerning such decisions, should be sufficient for the review to be seen as being vital to the entire process.

Decisions that are made must be programmed and budgeted

Necessary structures must be available to act upon decisions made. The existing structure may suffice, or a new structure, or structures, within the local school system may need to be created. The structure may vary from taking care of a single event to setting a routine by which all events of similar type will be handled.

Programming is the making of a relatively comprehensive list of procedures to be followed in putting decisions into effect. Phasing and scheduling of activities are dimensions of programming. Programming as part of the process results in the PLAN which shows the what, when, who, why, and how.

The key to drafting the PLAN is assuring that its elements are in proper perspective. For instance, if the PLAN does include a section describing the program evaluation activities, and does not provide for financial support of these in the budget, then the PLAN elements would seem not to be in proper perspective and balance. The budget then is a part of the PLAN.

Control, coordination, and adjustment comprise the step which assures that performance of activities corresponds with plans

This step is important because plans must be implemented; otherwise, planning for change would be unnecessary. Detailed orientation must be given to all persons who participate in implementing the change. All programs must be conducted within a set of limits and constraints. When these limits are known by all persons in the program, then the entire operation is likely to be successful. Limits usually are set by establishing policies which deal with the who, what, and how of decision-making. Clear policy statements, known to all persons affected by them, give security to each member of an organization. Subsequent meetings or progress reviews tend to clarify and stabilize direction for the entire change effort.

Probably the most important determinant of good control, coordination, and adjustment of programmed activities is that of information, or communication. Relevant information, provided to all persons in a program, tends to "involve" people and create an environment that is conducive to their participation in further change efforts. Program personnel should have pertinent information; they should have it first (ahead of "outsiders"); and they should get it in a manner which shows that the issuing person or agency is pleased that they do get it. Regularly scheduled meetings, properly conducted, are recognized as being vital to good communication within an organization. Data are presented and discussed; announcements are made; and program activities, problems, and procedures are elaborated upon. Such meetings become "program progress reviews."

Adjustments are made during the operation of the program to enhance the probability that desired outcomes will be accomplished. It should be recalled that this step precedes the one of evaluation and assessment where the process cycle was first entered.

With slight modification, the model described here can be adapted to plans for one-year, five-year, or longer vocational education programs. It can be seen that "planning" and "decision-making" are almost synonymous processes. Planning or decision-making in a local school system is not a personal matter. The effectiveness of planning is not a product of the quality of decisions of any one person. Rather, the planning process is an organizational matter, and the local school system can be evaluated by the quality of its decisions, and by the efficiency with which its structures put the decisions into effect. Viewed as an organizational matter, this type of planning process–since it is cyclical, continuous, or perpetual–provides the link for interfacing all the variables which influence the planning of change.

ALTERNATE STRATEGIES FOR IMPLEMENTING CHANGE

As indicated in a previous section of this document, a strategy is defined as "how to get change to occur," and there is no one best strategy for use in all circumstances. A strategy is a scheme, a design, a plan, a program, a systematic or organized framework for action. The key word in talking about a strategy is "action," whether it be "social action," "political action," "military action," "educational action," or some other behaviorally oriented endeavor. Miles (1964) emphasizes that strategy involves "a sequence of specified activities." Strategy is marshaling resources of technology, adapting facilities, restructuring the curriculum, and educating teachers to new roles.

A strategy apparently is supposed to be more "practical" than "theoretical," but the most practical thing about any strategy is the theory on which it is based, or from which it is derived. Therefore, a strategy selected for use in implementing change should take into account such factors as available funds; energy; time; system, subsystem, and supra-system norms; leadership structures and interactions. In addition, when selecting a strategy, one should consider those items discussed in the sections of this document entitled "Rationale" and "Change Process." All of these factors, principles, variables, processes and the like, dictate the choice of strategy in implementing change. Although this document contains quite a number of items that influence strategy choice, it is by no means an exhaustive listing. To discuss change strategies intelligently, vocational and technical educators must have some conception of what it is they want to change, of their role in making the change, on whose behalf, and with whose help the change may be brought about.

In order to discuss strategies which could be used to implement change, a search was made in the available literature for ways by which strategies have been categorized or grouped. The general complexity of the educational institutions in America–its differing administrative units, types of organizational structures, degrees of autonomy, methods and levels of finance, variations in community leadership patterns–causes great difficulty in categorizing strategies for change. The number of classifications or categories of strategies for effecting change is limited only by the size of one's vocabulary. Valid questions must always consider whether the categories correspond to events of the real world of vocational and technical education, and whether the strategies assigned to these categories are, in fact, mutually exclusive. The remainder of this section is devoted to a description of strategy categories, sub-categories, partial strategies, and elements or components of strategies, as viewed by authors in various disciplines.

Community-Change Oriented Strategies

There are numerous ideological strategies for implementing community change. Some observers of social change have used two major headings under

which they group strategies, and each group implies a rather different tactical orientation. One of these major categories is known as the "grass roots" approach, and the other one is called the "administered" approach.

The "grass roots" strategy is based on the "self-help" concept. Here the impetus for the change action originates with the people who want help, and they are heavily involved and participate in the action or actions. They give direction to the action, which itself is usually holistic or very broad in scope. Such a program progresses as the people "do for themselves" what they think needs doing. They usually seek external assistance periodically to help in implementing change. The "grass roots" strategy tends to make for an extremely flexible change program, as well as one that is continuously self-renewing for the organization.

Some observers cite serious drawbacks to this strategy. They indicate that it frequently is slower in achieving results than the "administered" strategy. The "grass roots" approach requires a high degree of both experienced generalized and specialized local leadership, serving on a continuous basis. It requires that major policy decision-making concerning action programs be made by the local community leadership instead of being made externally. In communities where local leadership is poor or lacking, the school may be in the community but not of it; hence, educational change would be unlikely to occur there, or change in the school would be extremely slow and painful. To be successful in implementing change, the "grass roots" strategy requires that the leaders of the community be devoid of vested interests.

Advocates of the "grass roots" strategy offer impressive arguments in its favor. Changes will be of maximum lasting and durable effectiveness only when the entire community becomes interested and involved in the ongoing development of their material and human resources to the extent that they institute a perpetual problem-solving, decision-making posture at the local level. The "grass roots" strategy emphasizes qualitative participation of local citizens. Involvement of people can be achieved best by utilizing gainfully the pragmatic nature of people, encouraging them to satisfy their paramount needs and desires by means they consider appropriate. The role of the change agent in the "grass roots" strategy is that of a catalyst and consultant. His efforts may be termed successful not when major changes are implemented, but when the community has evidenced the ability to identify and work toward realistic solutions to the various problems which it faces, including problems in improving vocational and technical education programs.

The "administered" strategy, on the other hand, is typified by the "blueprint" development program. Here change is carefully and completely mapped out before implementation. Proponents of the "administered" strategy contend that the need for rapid change often necessitates the use of a "blueprint" program. They argue that too frequently people do not really know what they need most, and they either cannot or will not arrive at consensus concerning their greatest problems. Similarly, proponents of this strategy feel that large-scale change can only be implemented by the "administered" or "blueprint" approach because many communities lack the required expertise to interpret and articulate trends and factors found in the larger society ("supra-system") which impact so heavily, sooner or later, on the local society.

The role of the change agent in the "administered" strategy tends toward doing for people what he and/or their leaders think should be done.

Categories of Strategies Based on Consensus

Warren (1971) discusses categories of social change strategies based on the concept of consensus, He states that:

> In the practical field of social-change efforts at the community level, there is a ferment of activity associated with the breakdown of the earlier professional tenet that *the* way to go about inducing change is through decisions based upon concensus. Hence the practitioner finds himself not with a single "professional" way to achieve change goals, but a veritable grab-bag of change strategies, many of them poorly defined, many of them overlapping.

Warren further indicates that

> the kinds of change strategy that are now being employed in one context or another include consensus planning, bargaining, protest movements, research-demonstrations, social action, nonviolence, organization of client populations, community development, conflict, elite planning, organization of indigenous groups, and civil disobedience. (1971: 7-8).

His definition and use of the term "purposive change" parallels that of "planned change."

As a basis for describing his categories of change strategies, Warren employs the terms value, interest, consensus, dissensus, saliency, latency, proposal, and issue. Definitions of these terms should precede further explication of his categories, and they are:

Values --	underlying, implicit bases for judgment and evaluation such as "equality," "freedom," "respect for human personality," etc.
Interest --	the relation of an actor to specific reality configurations, and interests are reflected in actual and potential social situations.
Consensus --	agreement on either values or interests or both.
Dissensus --	disagreement on values or interests or both.
Saliency --	the extent to which something (a value, an interest, or a situation) is a focus of attention and concern.
Latency --	the extent to which something fails to arouse attention and concern.
Change Agent --	one or more persons or groups who want to bring about change.
Proposal --	an explicit change objective that the change agent wishes to accomplish.
Issue --	an aspect or possibility of purposive (planned) change which is the subject of active consideration among important parties in a situation.

Warren describes the three major types of change strategies as: (1) collaborative strategies – these correspond to issue-agreement situations; (2)

campaign strategies – these correspond to issue-difference situations; and, (3) contest strategies – these correspond to issue-dissensus situations.

Collaborative Strategies in Brief. Collaborative strategies, according to Warren, are most appropriate in issue-consensus situations, where conflict has been resolved, where agreement has been reached as to what is wanted, where substantive agreement on proposals is readily obtainable, and where differences can be resolved by accurate information and improved communications. Adaptations of collaborative strategies can be made by restricting them to those parties holding mutual value-interest configurations, or by restricting the issues to only those changes on which agreement can be reached.

The role of the change agent in collaborative strategies is that of enabler, facilitator, catalyst, or consultant. As indicated in the "grass roots" strategy discussion, efforts of the change agent are directed primarily to helping the client system reach consensus on the issue or issues at hand, and secondarily, (if at all) to implementing his own preconceived change.

Campaign Strategies in Brief. According to Warren (1971) campaign strategies are appropriate in a situation where there is issue difference, but where there is some likelihood of reaching agreement. This situation is one in which simply encouraging discussion is not expected to gain consensus. The change agent in such a situation has a position on an issue that he believes has value-interest saliency which may not be shared by others, but on which he attempts to get agreement. His role, therefore, is that of persuader. The persuasiveness efforts may include such tactics as mass-media informational campaigns, letters, endorsement by prestige figures, organization of *ad hoc* groups to promote the proposal or change, and the like. Another tactic in campaign strategies is to bring pressure to bear on the client system so that they will lend favor to the change. Warren refers to this tactic as "moderate coercing of consent." Another aspect of campaign strategies is the offering of inducements to gain favor and assent to a change.

Campaign strategies have been used successfully when the prime obstacle was apathy or opposition. Where apathy exists, the change agent attempts to create interest, and when there is opposition, he focuses on attaining agreement. Warren states that "the organization that responds apathetically may in turn be reflecting latent functional blockages that may not even have been expressed verbally in the decision-making process."

Some campaign strategies run the risk of using an over-zealous change agent, one who is oblivious to value differences within a client system and its community. Such a change agent attempts to "sell" a particular change or proposal, to "blueprint" it for the client system.

Contest Strategies in Brief. Contest strategies are used when there is issue-dissensus on a value, interest, or change. Such strategies have been used most recently in attempts to bring about change in racial discrimination, disestablishment of dual school systems, and the like. Tenant protests, sit-ins, marches, and demonstrations are examples of contest strategies and tactics. Efforts to gain consensus are absent, or are temporarily abandoned. The role of the change agent in contest strategies is that of contestant. The issue(s) must be close to the lives of the community members, e.g., education, desegregation.

Contest strategies do not necessarily include tactics in which deliberate harmful activity is directed toward the opposition. Destruction of public property and bodily injury are examples. These are conflict strategies and are the extremes of contest strategies.

Warren concludes that there are four types of contest strategies: (1) one that involves persons holding opposing positions, but who interact within accepted social norms; (2) one where attempts are made to change the distribution of power in the community; (3) one that involves violation of the usual community norms, e.g., where some persons who customarily do not participate in decision-making are suddenly thrust into such involvement; and (4) one in which there is conflict in the strictest sense of the word, e.g., deposing officials, destroying a career, bankrupting a firm or businesses in a community.

Finally, there is the possibility that all three of the above types – collaborative, campaign, and contest – strategies may be used in combination during a community change effort. Community change strategies are sometimes broad in scope, or they may focus on specific problem areas within the community. There may be within a single community any number of action programs (occurring simultaneously) to induce change in a number of areas – education, industrial development, housing, mental health, and the like. Each may employ one or more of the community change strategies discussed here. The important point for consideration here centers around the coordination of all these efforts, if they are to be coordinated. Certainly the question should be raised of where vocational education change – inducing strategies fit into the overall plan for continued community progress. Attention to other community change efforts that are peripherally related to vocational and technical education is recommended to those who plan vocational programs or who play the role of change agent.

Human-Resources-Development Oriented Strategies

An important element of all strategies used in implementing change is the "conscious utilization and application of knowledge as an instrument or tool for modifying patterns and institutions of practice" (Chin and Benne, 1969). Chin and Benne defined two types of knowledge that were considered in their categorizations of strategies. One type of knowledge is called "thing technology." or knowledge of the nonhuman environment. This type includes the "hardware" and "software" of electronics technology, such as audio-visual devices, television, computers and computer-based programs and teaching machines. The second type of knowledge is labeled "people technology" or the behavioral knowledge necessary for working effectively with humans in implementing planned change. This type includes knowledge about individualization of instruction and participative learning, attitude change, effects of family disruptions and absentee parents, and cognitive-affective-psychomotor factors of new careers.

Chin and Benne (1969) contend that the successful implementation of planned change will be determined by the extent to which the "people technologies" are understood and utilized in introducing the "thing technologies" into school systems. Implicit in their thesis is the need for educators, like students, to "learn how to learn," to become both

product-and-process-oriented in order to develop a continuing and expanding propensity to change. Educators must become flexible, adaptive, creative individuals who can meet the continuing challenge of change if they are to prepare students who must face a future of unknown experiences.

Chin and Benne (1969) group strategies for change into three major categories, namely: (1) empirical-rationale, (2) normative-reeducative, and, (3) power-coercive. These will be explained here by giving underlying assumptions and bases for each, and by using examples which highlight the strategies in each category.

Rational-Empirical Strategies for Changing

One assumption in this category is that men are rational. Another basic assumption is that men will follow their rational self-interest when it is revealed to them. Research and education are looked upon in this category as being the best ways of extending knowledge and reducing ignorance and superstition. Some of the strategies in this category are discussed here.

Basic Research and Dissemination of Knowledge through General Education. This strategy appeals especially to the pure academician. Basic research almost always precedes widespread dissemination of information. When a client system continues to cling to traditional attitudes and values, this tends to hamper the effectiveness of this strategy. This strategy apparently works best in introducing "thing technologies," according to Chin and Benne.

Personnel Selection and Replacement. A basic premise in this strategy is that when difficulty arises in getting new knowledge introduced into a system, some person or persons need to be replaced, i.e., put the "right person in the right position." Chin and Benne indicate that this strategy has been given credibility "by the development of scientific testing of potentialities and aptitudes," and other uses of psychometric and sociometric tools. They cite two important observations about the use of such tools: (1) they have been used more often in merely maintaining the system than in changing the system, and (2) by focusing on the person, "gatekeeper," who restricts change, this strategy tends not to reveal the need for changing some of the social and cultural aspects of the system. However, this strategy would seem to have merit when applied to systems in which there is a long history of selection of key personnel based on nepotism, or the hiring of one's pals or cronies who may or may not be competent in positions they occupy. It also may have merit when applied to systems that exhibit high degrees of provincialism or parochialism among position occupants.

System Analysts as Staff and Consultants. Chin and Benne (1969) suggest that the use of systems analysts as a strategy for changing tends to focus more on system difficulties than on adequacies or inadequacies of persons who occupy key positions in the system. Futhermore, the orientation of systems analysts seems to be that of "scientific management" of bureaucratically organized enterprises. The focus is to organize all efforts toward the most efficient attainment of organizational goals which are defined in terms of production of some mandated product. Systems analysts may work as external consultants or as an internal staff unit. Despite some drawbacks of this strategy, Chin and

Benne (1969, 38) "see no necessary incompatibility between an ideology which emphasizes the individuality of the student and the use of systems analysis and computers in strategizing the problems of the total systems." They state further that, "the actual incompatibilities may lie in the limited uses to which existing organizers and administrators of educational efforts put these technical resources."

Applied Research and Linkage Systems for Diffusion of Research Results. This strategy is best exemplified by the land-grant university and the agricultural extension system, which link knowledge, discovery, development, and utilization. However, according to Chin and Benne (1969, 39), "the system has worked better in developing and diffusing "thing technologies" than in developing and diffusing "people technologies." Their report gave evidence that inadequate linkages between local school systems and educational researchers have led to more interest in evaluation research. Application of this strategy to all types of educational endeavor must include interaction not only between researchers, developers, and teachers, but must also collaboratively involve the students.

The Guba-Clark (1965) schema of processes necessary for change and the Gideonse (1968) model for planned change that were discussed in a previous section of this document are examples of efforts to effect change employing this strategy.

Utopian Thinking. This strategy involves the invention and design of future program components by extrapolating present knowledge and trends. Much activity of this type is intuitive, and too frequently results in expressions for action that are conceived by one person or a small group of persons which are not representative of the larger society. In other words, not enough people were involved in the articulation of what is now known with what ought to be in the future. This strategy usually employs techniques of predicting and forecasting done by a few elite.

Perceptual and Conceptual Reorganization through Clarification of Language. Chin and Benne (1969) include in this strategy all efforts that are made to clarify the language of things and processes. The strategy includes personal therapy for persons as they live and work in social systems. The focus is upon getting people to perceive more clearly and correctly, communicate more adequately, and reason more effectively, which would result in a common basis for action and changing. This strategy overlaps into the next category of strategies.

Normative Reeducative Strategies for Changing

Chin and Benne (1969) indicate that the strategies in this category, as in the rational-empirical category, rest on the rationality and intelligence of men. But in addition, the normative reeducative strategies also are based on other motivational assumptions. Accordingly, Chin and Benne (1969 , 34) say that persons will establish new behavior patterns and practices only when they are involved to the extent that they experience "changes in attitude, values, skills (especially communicative skills), and significant relationships, not just changes in knowledge, information, or intellectual rationales for action and practice." This category of strategies is based on inherent psychological motivations of

men, who actively seek impulse and need satisfactions. Chin and Benne (1969, 43) point out that "intelligence is social, rather than narrowly individual," and that "men are guided . . . by a normative culture." Changes in patterns of men must be internalized at the personal level. At the socioeconomic level, changes are alterations in normative structures and in institutionalized roles and relationships.

Chin and Benne (1969, 41) stress that normative-reeducative strategies "bring direct intervention by change agents, interventions based on a consciously worked out theory of change and of changing, into the life of a client system." They point out some common elements of this category of strategies. One element is that emphasis is on the client system and his (or its) involvement in working out programs of change and improvement for himself (or itself). Another element is that the client's problem may not be solvable by merely assimilating more technical knowledge, but may require change in attitudes, values, and norms. A third element is that the change agent "must intervene mutually and collaboratively along with the client into efforts to define and solve the client's problem(s)." A fourth element is that hidden factors which hinder problem solution must be revealed and be discussed openly. A fifth element is that behavioral concepts and resources should be used both by change agents and client system to deal with immediate as well as future problems of change.

Improving the Problem-Solving Capabilities of a System. This strategy, according to Chin and Benne (1969), rests on the assumption that a client system must develop and institutionalize its own problem-solving structures and processes. These structures and processes must deal with a wide range of

> sociotechnical difficulties, converting them into problems and organizing the relevant processes of data collections, planning, invention, and tryout of solutions, evaluation and feedback of results, replanning and so forth, which are required for the solution of the problems.

Chin and Benne (1969, 47) present four intervention methods in this strategy. These are: (1) collection of data about organizational functioning feedback of data into processes of data interpretation and of planning ways of correcting revealed dysfunctions by system managers and data collectors in collaboration; (2) training of managers and working units in methods of problem solving; (3) developing acceptance of feedback (research and development) roles and functions within the organization or system, and training persons to fill these roles; and, (4) training internal change agents to function within the client system in carrying on needed applied research, consultation, and training.

It seems obvious that this strategy, although demanding with respect to time and effort, would be worthwhile to consider if the objective is to develop personnel and an environment that would be capable of directing and controlling change in a constant and consistent manner within a system.

Releasing and Fostering Growth in the Persons Who Make Up the System to be Changed. This strategy, according to Chin and Benne (1969, 48-49), views the individual person as the basic unit of social organization. Support is given persons to help them become creative, self-actualizing individuals. The

environment must foster attitudes of trust, empathy, and caring. If these and other personal needs are met, then higher need-meeting actions will take place. Intervention methods used in this strategy may include personal counseling of persons in the client system. Also, T-group sessions designed to facilitate personal confrontation and growth of members in an open, trusting, and accepting atmosphere are employed in this strategy. This strategy focuses "primarily on helping individuals to change themselves toward greater self-clarity and fuller self-actualization." However, it also is employed "in the hope that personal changes will lead to changes in organizations, institutions, and communities as well."

Both of the strategies in this category make use of temporary systems, such as (1) a residential laboratory; (2) workshops; (3) a temporary group with special resources built in; and, (4) one which incorporates a change agent in the form of trainer, consultant, counselor, or therapist. These strategies "emphasize experience-based learning as an ingredient of all enduring changes in human systems." Both strategies "emphasize norms of openness of communication, trust between persons, lowering of status barriers between parts of the system, and mutuality between parts as necessary conditions of the reeducative process." According to Chin and Benne (1969), such strategies emphasize the self-renewal concept of a system as opposed to that of mere system maintenance and control.

Power-Coercive Strategies for Changing

This category of strategies is based on the application of power (political, status-position, economic) to get change to occur. Some strategies in this category involve getting those with less power to act in a manner desired by those with greater power. Chin and Benne (1969, 52) point out that "power is an ingredient of all human action." Power-coercive strategies focus on the ways by which the ingredients of power are generated and applied to processes involving change. Some strategies in this category "emphasize the utilization of moral power, playing upon sentiments of guilt and shame."

The law passed to enforce desegregation is an example of legitimate coercive power used to bring about change. Problems in using such strategies occur when opposition to a change arises in the form of mass political and economic power.

In educational systems, as in other social systems, there are persons or groups who are entrenched in command positions which allow them to use power-coercive strategies in effecting change. Those out of power in the system frequently are unaware that such strategies are being employed. The fact that power-coercive decision-making is conducted by persons in power positions seems to be commonly and passively accepted by persons out of power, i.e., it is merely the "nature of the organizational structure."

Power-coercive strategies sometimes tend to pit one element of a system against another. An example is teacher unions against the central administration and school board of a school system, the one threatening with strikes, the other threatening with legislation against teacher strikes.

Several strategies should be noted in this category. These are discussed on the following page.

Nonviolence as a Strategy for Changing. The use of nonviolent activities as a strategy for bringing about change is not new, according to Chin and Benne (1969). Mahatma Gandhi, Thoreau, and Martin Luther King, Jr. are viewed as proponents of the nonviolent strategy. Even though violence in some instances may have preceded or succeeded the actual nonviolent coercive activities of Dr. King, such occurrences were only peripherally and remotely related to the true intent of his practices involving the nonviolent strategy.

Use of Political Institutions for Changing. Political power is well known as a strategy for implementing change in education. Chin and Benne (1966, 54) indicate that, "changes enforced by political coercion need not be oppressive if the quality of our democratic processes can be maintained and improved." Legislation at the state level has been influential in shaping change policies in local school systems by conferring varying degrees of discretionary powers upon school administrators. In addition to legislative action, judicial decisions have impacted heavily on change processes in the schools. However, legislative and judicial actions are not always followed by rapid and far-reaching changes in behavior and practice in the schools. These legal actions merely legitimize a change; they do not institutionalize it. Reeducative measures still must be conducted before change takes place.

Recomposition and Manipulation of Power Elites for Changing. This strategy focuses upon those who own and control the means and processes of production of goods and services in a society. According to Chin and Benne (1969, 56), there has been identified a "power elite, essentially composed of industrial, military, and governmental leaders, who direct and limit processes of social change and accommodation in our society." At the local level there may be a similar elitist leadership structure in control. In such instances, this leadership elite must become a target of those who wish to bring about change in education.

Educational-Systems Oriented Strategies

Up to this point in this document, most of the material, in one way or another, has implicitly emphasized the concepts of problem-solving and decision-making. The reader is reminded of Griffiths' (1959) model of decision-making as a theory of administration. His model was discussed and elaborated upon in a preceding section of this document by relating it to the change process.

The concept of problem-solving has been used by others as a basis for developing strategies and tactics for implementing change in schools. One of the most recent and comprehensive efforts has been that of Havelock (1970) in which he presents two ways of looking at stages of innovation or change, one from the viewpoint of people who are being changed (client system), and the other from the viewpoint of someone (change agent) who is trying to bring about change. His premise is that a client system can follow a problem-solving model if they have help from a change agent. He then relates this premise to a six-stage model for innovation or change. Havelock's model also implies "action" in that he presents specific activities and techniques for use by change agents. In these respects his six-stage model for innovation is more closely akin to a

strategy for implementing change than it is to a change process, hence the reason for including it in this section dealing with alternate strategies.

Havelock (1970) lists and discusses a number of strategies and tactics which are apropos to each of the six stages in his model for innovation. His "Guide" is designed for and directed specifically to the change agent who may be internal or external to the client system. A change agent may be any one of the following, according to Havelock (1970, 8):

Some Examples of People Who Might Act as Change Agents in Education

1) Curriculum and Research Coordinators
2) Directors or Coordinators of Federal Programs
3) State Department Program and Curiculum Consultants and other state staff personnel
4) Regional Laboratory Dissemination Staff
5) County and Intermediate School District Consultants
6) Supplementary Center Staff (e.g., those supported by Title III of ESEA)
7) Continuing Education and Extension Instructors
8) Professors in Schools of Education Who Do Field Consulting
9) Salesmen of Educational Products and Publications
10) Superintendents and Other Administrators (at least part of the time)
11) Teachers (at least part of the time)
12) Counselors (at least part of the time)
13) Board of Education Members (at least part of the time)
14) Students (at least some of them some of the time)
15) Concerned parents and other citizens

To help the reader gain a better grasp of these strategies, Havelock's six-stage model will be described here. (For further description of Havelock's strategies and tactics, see Havelock, 1970, Appendix A).

Stages of Havelock's Model for Innovation in Education

Havelock (1970, 11) stresses that "the focus of innovation planning has to be the USER, himself: his needs and his problems must be the primary concern of educational reform." The stages of his model are: (1) building a relationship; (2) diagnosing the problem (s); (3) acquiring relevant resources; (4) choosing the solution; (5) gaining acceptance; and, (6) stabilizing the innovation and generating self-renewal. Each stage is presented below along with Havelock's description of how a change agent works in it.

1. Building a Relationship. Havelock indicates that this stage is perhaps the most important one for the change agent. The change agent must develop a strong, viable, helping relationship with the client or school system, as well as with other elements of the community. Maintenance of this relationship in a continuing fashion is also important. Havelock sets forth procedures for establishing the relationship and criteria for judging its viability.

2. Diagnosing the Problem(s). According to Havelock, diagnosis is a systematic attempt to understand the situation by both the change agent and the

client system. The change agent helps the client system "articulate the need(s)" of the system. Delineation and definition of the problem(s) and underlying causes are focused on in this stage in order to establish goals and objectives. Goals and objectives should be made in terms of outputs and outcomes and these should be communicated to persons who are interested, concerned, and effected by them. Havelock cautions against the use of too much time in diagnosing, but stresses the importance of determining and defining client needs before a solution(s) to problems is suggested.

3. Acquiring Relevant Resources. In this stage Havelock stresses that the focus is on "resource acquisition, not resource evaluation or utilization." Furthermore, acquisition may take place at any point in the planned change process. In order to innovate, resources are needed: (1) for diagnosing client system needs and problems; (2) for creating awareness within the system of possible solutions; (3) for comparing (or evaluation-before-trial) alternative solutions; (4) for trial of an innovation in the client's setting; (5) for evaluation-after-trial (which must be generated from within the client system); (6) for installation (including initial costs, new staff, training, readjustments, etc.); and, (7) for maintenance (long-term costs, etc.). Havelock presents procedures for acquisition of resources in this stage.

4. Choosing the Solution. In delineating this stage, Havelock suggests a "four-step sequential process." These steps are: (1) deriving implications from research; (2) generating a range of solution ideas; (3) feasibility testing; and, (4) adaptation.

In deriving implications from research, Havelock describes the manner in which a change agent retrieves summary statements from research reports, how these statements are reformulated and checked for understanding, how the statements relate to the client system, and how statements can be used to infer implications for action.

In generating a range of solution ideas, Havelock indicates that the ideas may come from research reports, other client systems, or commercial sources. Some solutions may be suggested from the statement of objectives. However, Havelock stresses the desirability of generating solutions or ideas from within the system by using such techniques as brainstorming.

In feasibility testing, Havelock emphasizes application of testing, comparing, judging. Measurement criteria include benefit to client system, workability of the solution, and diffusibility or acceptance by client.

5. Gaining Acceptance. The four previous stages were focused on how the change agent prepares for a program of change; they culminate in the choice of a tentative solution. Havelock states that the fifth stage "is the time for transforming intentions into actions." He summarizes many of the principles and factors of innovation diffusion in discussing this stage, some of which have been discussed earlier in this document.

In this stage Havelock considers: (1) how individuals accept innovations; (2) how groups accept innovations; (3) how to choose a communication strategy which is effective for individuals and groups; and, (4) how to maintain a flexible program for gaining acceptance. It is imperative that each individual involved in the change be allowed time to understand it, to learn how to use it, and to become accustomed to required changes in his own attitude and behavior. Peer

group interactions usually reduce the time required in accomplishing these things. Because the school is a client system of interacting and interdependent persons and groups, time must be allowed for them to understand how an innovation is adopted by a social group. Not only must facts and information be communicated to individuals, but indications of support and approval from the change agent must be conveyed. Constant review and assessment is necessary as implementation proceeds. There is a serendipitous dimension in the role of the change agent in this stage of the change program. Havelock sums up this stage by stating that "every attempt should be made to prepare a schedule which is both flexible and schematic – a difficult balance to strike, but a crucial one."

6. Stabilizing the Innovation and Generating Self Renewal. Havelock stresses the fact that a change agent's task is not completed after traversing the first five stages. The sixth stage is important to a continuous change environment. Stabilization (some have referred to a similar stage as "institutionalization") and self-renewal are key concepts in long-term maintenance of innovations. This step is especially important when external sources of funds are used to support initial implementation of an innovation with the knowledge that such funds will terminate after a specific period. Actually, this factor should have been considered in previous stages.

Havelock indicates that continuance of an innovation can be insured by the change agent helping the client system: (1) to perceive continuing rewards from the innovation; (2) to become accustomed to the innovation; (3) to adjust it to his structure; (4) to continually evaluate the innovation over time; (5) to provide for continuing maintenance; and, (6) to continue adaptation capability for the innovation.

Insofar as self-renewal is concerned, Havelock stresses that "the client should learn to be a change agent for himself." To do this there must be within the client system: (1) a positive attitude; (2) an internal subsystem devoted to bringing about change; (3) an active inclination to seek external resources; and, (4) a perspective on the future as something to plan for. The viable change agent-client system relationship established in the first stage should be maintained in effect throughout the sixth stage. This would enable the change agent to assess his approaches to the entire process.

SUMMARY

The foregoing material has centered around discussions of a rationale for planned change, the change process, and alternate strategies for implementing change. No attempt has been made to list the many innovations which have been implemented in vocational and technical education programs in recent years. Instead, the material has focused upon a basis for innovation, the myriad of principles and procedures applicable to the innovation or planned change process, and the many strategies for change implementation.

Should a "laundry list" of recent innovations be desired by the reader, he is referred first of all to the documents of the Educational Resources Information Center (ERIC), including the *Abstracts of Research Materials in Vocational and Technical Education* (ARM) and *Abstracts of Instructional Materials in Vocational and Technical Education* (AIM) compiled and distributed by The Center for Vocational and Technical Education at The Ohio State University. Secondly, the reader is referred to publications of the U.S. Office of Education, many of which describe in detail the innovations and changes which have been brought about through specifically funded programs in research, development, demonstration, and pilot projects. Most of the information dealing with these projects has been placed in the ERIC system. Thirdly, the reader is referred to the vast array of innovation descriptions contained in journal and/or periodical literature.

The writer purposely has not dwelt at length on the many aspects of resistance to change, chiefly because of an inherent belief that, if properly motivated and assisted, people have a strong propensity to change, to become committed to providing opportunities for a better education for all persons. The writer chose not to fall into the naive blunder of thinking that the problem of nonacceptance of an innovation lies totally with the person who resists change. It conceivably might be the other way around; i.e., the would-be proponent or change agent might be the real block to acceptance of innovation and change, for not all educators are haters of new things or ideas.

Similarly, the writer did not treat in depth the costs of innovation and change because "the only thing more costly than a good education is a poor one." Change usually cannot be effected inexpensively.

However, the seriousness of both resistance and cost, as factors influencing change, is recognized. Any consideration of change and changing usually leads rapidly to a discussion of costs. Costs frequently are discussed before anything else about an innovation, and just as frequently such discussions result in premature judgments against implementing an innovation. Resistance to an innovation frequently relates to premature judgments regarding costs or other factors. Not only is cost an important element in a change strategy, but the timing of discussion concerning cost is equally as important. Carlson (1965) indicated that research among schools in a county in western Pennsylvania revealed that

"amount of money spent per child had no predictive power in relation to the rate of adoption" of innovations such as team teaching, modern math, foreign language instruction in elementary grades and programmed instruction.

Most of the models and strategies reviewed in this document stress the importance of cost considerations, especially the model of Havelock (1970).

Reemphasis of Local Initiative in Planned Change

During the past few years there seems to have emerged a nationwide trend toward placing greater emphasis on local initiative for educational, economic, industrial, and general community development and improvement activities. There seems to be emerging a reemphasis toward greater local management by local boards, committees, and councils in all development activities and planning. These trends tend to foster more support from local government and private sources for local initiative programs. The objective apparently is to develop local institutions, including the institution of education, into well-established sets of principles, activities, and commitments with viable structures of their own in each local setting or community. Each local institution would be sustained by strong local roots.

Achieving this objective will require federal and state agencies, especially educational agencies, to become less directive and more supportive of the continuing process of institutional change at the local level. This means that federal, regional, state, and district educational agencies must make stronger efforts to assist local school systems in designing and implementing their own locally planned and initiated change strategies.

At least three basic elements are necessary to such efforts. First, each school system must conduct regular internal self-assessment, i.e., continuous locally initiated, state supported and coordinated evaluation, such as that described by Byram (1971). Second, each school system must assume a staff-development posture and orientation so that each educator becomes a change agent or an agent of change. Third, each school system must establish interactional linkages with agencies which can help improve the flow of information on: (1) federal and state legislation; (2) program improvements-changes-innovations; and, (3) research and curriculum development resources.

Local school systems need more than monetary assistance to accomplish these three basic elements. They need help from state staffs and teacher education departments in developing internal change agents and in establishing communication linkages with external change agents. Each internal and external change agent needs to understand that his success must be measured by the integrity of the changes he seeks to implement and the strategies he uses to get the job done, not merely by the sheer numbers of supporters he enlists. He should strive to achieve a better understanding of the changes he wishes to implement, not to promote the idea of change merely for the sake of change. He must be able to do more than merely identify and work with opinion leaders; he must be concerned with the personality structure and psychological capacity for growth and change that is exhibited by each educator in the client system. In addition, the change agent must be concerned with the total milieu or setting in which individual educator personalities reside. This is a must because the actions,

interactions, reactions, and behaviors of any person cannot be fully observed or analyzed apart from their relationship to the institutional matrix in which they occur. Said another way, any particular planned change effort will be greatly influenced by conditions that exist in the local school system and in its local community. The environment and the educational decisions which emerge from it are inseparable. The environment indicates the kinds of changes which are necessary, while also setting the limits on change policy.

Coordinative Linkages

Implicit in all of the foregoing material in this document is the need for improved coordination of vocational-technical education change activities among and between the various levels of the educational structure--federal, regional, state, district, local, building, and classroom levels. By coordination is meant, among other things, information flow and feedback; assistance between levels in upgrading and improvement of personnel capabilities; cooperative approaches to change policy determination; and, above all, assistance in local level planning-implementation-evaluation of vocational-technical education programs.

In the end, the primary focus must always be on developing local vocational-technical programs which are continuously innovative and self-renewing. Change efforts must always be focused on improving what the teacher does and how he does what he does. It must be simultaneously recognized that the local school system superintendent and building principal, as "gatekeepers," essentially set the climate or tone for change.

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